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ABSTRACT

This source book brings together research about improving the ways that learning, teaching, and schooling are organized, and how school and school district size may affect such efforts. Six scholars were commissioned to address the questions of how to define quality in education; how school and district size are related to educational costs and quality; and what recommendations to offer to educators, school board members, and legislators. The papers are: (1) "Small Is Too Big: Achieving a Critical Anti-Mass in the High School" (Tom Gregory) (developing innovative small high schools oriented toward individual learning and democratic processes); (2) "Modern Conceptions of Educational Quality and State Policy Regarding Small Schooling Units" (David H. Monk) (the need for state policymakers to be more receptive to alternative forms of reorganization); (3) "Remapping the Terrain: School Size, Cost, and Quality" (Paul Nachtigal) (viewing the issues of educational size, cost, and quality from the perspective of maintaining healthy, viable communities); (4) "Size, Cost, and Quality of Schools and School Districts: A Question of Context" (Al Ramirez) (optimum size of educational institutions as an elastic concept related to institutional mission and setting and available resources); (5) "Small Is Beautiful" (Bethany Rogers) (evidence that a caring intimate environment lays the foundation for learning); and (6) "On Local Control: Is Bigger Better?" (Herbert J. Walberg) (states with lower achievement scores have bigger schools and districts and a larger percentage of educational funding provided by the state). (SV)

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Source Book on

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Introduction

This book was designed with two clear purposes: to improve student achievement and to improve graduation rates of students in the Midwest. Although a great deal has been written about changing, reforming, restructuring, and improving public schools to achieve these purposes, most of this literature ignores the issue of school size. However, many studies have been done about school consolidation. This book is an attempt to bring together research about improving the ways learning, teaching, and schooling are organized, and the ways school and school district size will affect such efforts.

North Central Regional Educational Laboratory and Center for School Change each commissioned three authors who represent a variety of views. The idea was not to confuse readers, but to bring together some of the most thoughtful scholars on this subject. We made no effort to edit or temper the ideas, concepts, assumptions, or recommendations of any author. Each of them was asked to answer at least three of the following four questions.

1. How do you think quality in education should be defined?
2. Based on your research and experience, what is the relationship between school size, cost, and quality?
3. Based on your research and experience, what is the relationship between school district size, cost, and quality?
4. Based on your answers to the above questions, what recommendations would you make to educators, school board members, and state legislators?

This source book was prepared in conjunction with four conferences held in November and December 1992 in various Minnesota communities. The conferences enabled people to talk firsthand with most of the researchers whose work is included in this book. Our intention is to publish a report based on those meetings, which includes participants' questions, reactions, and suggestions.

We want to acknowledge the assistance provided by the Blandin Foundation, based in Grand Rapids, Minnesota. This source book could not have been completed without their encouragement and support.

We hope that this publication will be useful as school board members, educators, parents, and state legislators make complex decisions about changing schools and districts. The bottom line in such decisions must be "What's best for young people." We think this source book shows that there is no one "best" approach for all.

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Small Is Too Big:
Achieving a Critical Anti-Mass
in the High School

Tom Gregory
Indiana University

Introduction

Big high schools no longer work for today's youth. Adolescents and the society in which they live have changed dramatically since the institution was conceived. Two lists of Fullerton, California's "nonscholastic concerns" about the high school—one compiled in 1940, the other in 1982—encapsulate these changes.[1] In 1940, when the concept of the modern American high school had already reached a certain maturity, the concerns ranged from talking and chewing gum to wearing improper clothing and not putting paper in wastebaskets. In 1982, the nonscholastic concerns included drug and alcohol abuse, pregnancy, suicide, rape, and robbery. Vandalism, assault, arson, bombings, murder, gang warfare, and venereal disease were also listed. American high school programs have been regularly updated and fine-tuned in response to these ever-changing conditions, but the fundamental premises upon which they were founded remain intact, even though these premises are no longer valid.

James Coleman (1972) described the shifts that have occurred in our society in the century and a half since the schooling model that we still employ was devised. Early nineteenth-century agrarian America was, for the young, action rich but information poor. Adolescents on farms often functioned much as responsible adults. But information, even in the form of printed matter, was scarce. *Telling* children about a world that they could not know through any other means was a necessary teaching activity. A boy in rural Illinois in the 1870s could sit awestruck, "open-mouthed and incredulous," as his teacher mentioned in passing that he had been on a train that had traveled 60 miles an hour. Since then, our 180-degree transformation into an information-rich, activity-poor society has not been matched by a commensurate change in our schools:

The school of the future must focus on those activities that in the past have largely been accomplished outside school: first, productive action with responsibilities that affect the welfare of others, to develop the child's ability to function as a responsible and productive adult; and second, the development of strategies for making use of the information richness and the information processing capabilities of the environment.

> The activities that have been central to the school's functioning, such as expansion of students' factual knowledge and cognitive skills, must come to play an ancillary role. It is not clear just what the shape of future schools will be, but they must not have as their primary goal the teaching of children. Anomalous as this principle may seem, it is the key to successful educational institutions of the future. The failure to recognize this principle is a major source of malaise in present schools (p. 75).

More recently (1987), Coleman has described the growing dysfunction of high schools stemming from a second founding premise. When the high school was created, he points out, the relationship between the old and the young was very different than it is today. Authority then was much more closely linked to financial dependence. As long as a child lived at home, he or she was expected to obey the head of the household. Accordingly, the schools that were created for the youth of that era expected youth to *mind those in authority*. (Fullerton's 1940 list of concerns, for example, is a catalog of ways for kids not to mind.) Gradually over the past few decades, that fundamental relationship between the older and the younger generations has changed. In most families in the United States today, a shift in the relationship occurs around age 14, and in some families it occurs much earlier. As today's children mature, minding adults begins to be replaced in most families by a form of negotiation.[2] Meanwhile, today's youth still attend high schools that operate on the premise that adolescents will mind.

Most high schools are far too large to operate on a negotiation model, even if they chose to try. Negotiation does occur in high schools, but it is far more likely to occur at the classroom level where teachers, beleaguered by students who won't mind, resort to tacit social contracts (Sizer, 1984; Powell, Farrar, & Cohen, 1985; Sedlack, et al., 1986). Such contracts are the survival mechanisms of an institution in the middle stages of environmental collapse. Constructive forms of individual negotiation seldom occur at the school level because they violate a founding premise of the institution: Kids are expected to mind adults. Perhaps most evident is the degree to which control and disciplinary concerns often dominate the criteria by which the performances of secondary school administrators are reviewed. A school designed in an era when adolescents were treated as children has great difficulty, today, treating them as adults.

If big high schools no longer work for students, they also no longer work for teachers. As we have abandoned small, personal schools, two related conditions have evolved. The role of administrators has increasingly gained prominence and we have gradually wrested control of schools from teachers. The degree to which support for teachers has waned is evident, not in what administrators and school board members say about teachers, but in what they do about them:

> [T]here are many people in policy-making roles and administrative positions who mouth pat phrases about the importance of teachers and teaching—and then proceed to undercut teachers by creating conditions of work that blunt their enthusiasm and stifle their creativity. [Such actions constitute] a kind of "neutering" of teachers. Neutered teachers lack physical strength and energy, enthusiasm for their work, and motivation. (Frymier, 1987, p. 9)

Susan Moore Johnson (1990) summarizes the low levels of collegiality experienced by even the effective teachers that she studied:

> In the ideal world of schooling teachers would be true colleagues working together, debating about goals and purposes, coordinating lessons, observing and critiquing each other's work, sharing successes and offering solace, with the triumphs of their collective efforts far exceeding the summed accomplishments of their solitary struggles. The real world of schools is usually depicted very differently, with teachers sequestered in classrooms, encountering peers only on entering or leaving the building. Engaged in parallel piecework, they devise curricula on their own, ignoring the plans and practices of their counterparts in other classrooms or grades; when it occurs, conversation offers a diversion from teaching rather than the occasion for its deliberation—travel plans rather than lesson plans are said to dominate faculty-room talk. Although such portrayals are often exaggerated, they contain more truth than most of us would like to believe. (p. 148)

A middle school teacher told Johnson, "People want to have faculty meetings, would like to sit down and be able to discuss educational issues, not drivel. We have few opportunities to do that" (p. 185). Yet, only seven of Johnson's 75 teachers in public schools believed that they exerted ongoing influence over important schoolwide matters. The *size* of most high schools is the primary barrier to the development of a truly collegial atmosphere.

Achieving a Critical Anti-Mass

The research on the effects of school size displays an impressive consistency. The literature demonstrates that students learn at least as much in small high schools as they do in large ones, that students in small high schools are less likely to drop out and that these schools cost little more to operate. Fowler's study of New Jersey's high schools (1989) and its accompanying review of the literature is a relatively recent reconfirmation. He concluded that

> public school size and district size both influence schooling outcomes [in favor of small size], and although other evidence of this relationship has accumulated, policy makers seem to ignore the finding and its significance (p. 21).

Let me make two points about this unusually consistent research record. These favorable comparisons were achieved in small high schools that typically function under the handicap of attempting to emulate a big-school model, and these results were achieved in schools that I believe are still too big to enjoy the essential advantages available only to very small high schools.

My research on very small public high schools convinces me that the single change that would most enable the development of new, more effective conceptions of the high schools is to reduce their size radically. Agreement is now widespread that the high school has grown too big. Indeed, 500 students seems to be mentioned often as a target in down-sizing proposals. But that number makes sense only if one's intention is to continue to conduct business as usual: a routine of textbook-dominated classes that are designed to dispense a curriculum that emphasizes the transmission of information from the old to the young via group instruction delivered within the confines of the school building. Mary Futrell, former president of the NEA, has aptly called this concept the two by four by six school, an education confined by the two covers of the textbook, the four walls of the classroom, and the six hours of the school day. This conception of *small enough* is at least as old as James Conant's dictum (1959) that a school must have at least 100 students in a graduating class to adequately prepare students for college. His statement was more supportable at a time when group instruction was seen as the only workable model available, when the automobile was just beginning to give teenagers previously unimagined mobility within their communities, and when the technologies of the microcomputer and distance education were wildly improbable fantasies.

The problem with high schools of 500 students is that they still function as big schools. It is in this sense that small is too big. High schools of 500 students still tend to be governed, though to a diminished degree, by the control issues that dominate big high schools. Many students are still anonymous enough to evade personal responsibility for their actions and therefore still cannot be trusted, a fundamental prerequisite of any school that strives to give students more control over their education, to treat them more as adults. Moreover, high schools of even this size still have too many teachers. Giving control of schools back to teachers is central to the gradual improvement of the conditions of teaching, conditions that the Carnegie Task Force on Teaching (1986) termed abysmal.

After looking at dozens of public high schools, both small and large, Jerry Smith and I concluded that, as school size increases, the number of teachers in a school becomes critical long before the number of students does (Gregory & Smith, 1987). All of the teachers in a school need to feel that they play an important role in setting its course, that none of them feels redundant (Barker and Gump, 1964). The number of teachers in a school needs to be reduced to the point where all teachers can sit down and plan the course of the school *as a group*. Much of the group dynamics research sets the maximum size of such work groups at about 12.

A school that does not work for teachers has little chance of working for students. Seymour Sarason's recent, very important book, *The Predictable Failure of Educational Reform* (1990), convincingly makes this point: We need to reconceive schools as being good places for both students *and* teachers. I attribute the limited success of the restructuring movement, well-described by Reigeluth, Norris, and Ryan (1991) and by Smith, et al. (1992), to be due to the antithetical nature of inclusive models of governance and the size of the schools in which we are attempting to develop them.

This notion of a high school seems strange, even unworkable, but hundreds of public schools function quite successfully on this model. I refer not to small rural schools that more typically struggle to emulate the standard big-school model, but to alternative high schools, almost all of which have student bodies of fewer than 250 students. For several years, Jerry and I contrasted the social climates of these schools, many of which are populated by reputedly tough-to-teach kids, with the social climates of their big high school brethren (Smith, Gregory, & Pugh, 1981a, 1981b; Gregory & Smith, 1983; Smith & Gregory, 1982). We had studied more than 80 high schools, large and small, in more than 20 states before we finally found a small, informal high school with a social climate desperate enough to rank it slightly below the very best large comprehensive high school that we had studied. And we had studied several such schools that were reputed to be among the best in their states.

But even after years of overwhelming evidence of the superior social climates of small, informal high schools, Jerry and I presumed that achieving those climates required the sacrifice of programs, that one could not provide intensely personal, highly supportive conditions for adolescents *and* provide them with rich academic programs. That view changed when we began to encounter a few very small public high schools with programs so rich in variety and flexibility that students were leaving highly reputed, comprehensive high schools to gain access to programs that their former schools *could not offer*.

The *perceived* limitations in the program that small high schools can deliver and their presumed high cost regularly have been cited as justifications for our steady march toward giantism.

The research convincingly stamps both of these views as misconceptions. To understand why, we must imagine schools that are so small that their size becomes not a handicap but an overwhelming advantage.

The concept of critical mass—marshalling sufficient resources to achieve potency for an effort—is a familiar one. Our goal in this case is the opposite: to achieve what, for lack of an available term, I will call a critical anti-mass.[3] The idea is to become a lean enough institution to do the job that today's information society enables and today's teenagers require. We need to create schools in which the minimum unit of instruction is not 25 or even 15 students, but one. We need high schools that allow—indeed require—us to break the two by four by six boundaries of how we think about school. We need to replace schools that are so big that some of them cannot even trust their teachers with schools that are so small that they can trust all of their students—not just an elite that is sequestered in a gifted and talented program—with freedom and responsibility (Gregory, 1990). To accomplish these goals, we need to make the high school so small that only an individualized program makes sense in it, that control is not a central issue and every person—teacher and student alike—can have a say in how the school is run.

The Programmatic Potential of Very Small High Schools

My proposal bears serious consideration only if we can mount programs in small high schools that are at least the equal of those in big schools. Perhaps the most effective way that I can convey, in the limited space of this paper, how different and how effective the academic program in a very small public high school can be is to describe one such public high school. I spent the entire 1987-88 academic year teaching in and conducting research on the Jefferson

County (Colorado) Open High School.[4] The school demonstrated the sort of rich, empowering program that can be delivered to *all* students with the funding currently available to most public schools. The school was very small, with a heterogeneous student body of 238 students. Students freely chose to attend the school, which accepted them on a first come, first served basis regardless of their motivation, ability, or past school history.[5] About ten percent of its students would have been labeled gifted and talented in other schools; about another ten percent were identified as special education students; and about 50 percent bore those characteristics that would lead many to label them as "at-risk." The school gave no grades and emphasized self-evaluation in a highly-personalized program that contained all of the trappings of the most visionary gifted and talented program:

Control of one's education. The Open High School's effort to empower its students was best manifested in the control that students exercised over their own education. During their first weeks in the school, new students began identifying their strengths, weaknesses, and prior accomplishments in relation to the school's 24 Graduation Expectations.[6] They identified past school and life experiences that might satisfy parts of these requirements and designed activities that would satisfy others. All of these deliberations began to take shape in students' first attempts to define their Individual Education Plans (IEPs). Students' weekly schedules intentionally contained considerable unscheduled time for individual work, both in and out of the school.

Personalization. Students did not attempt these activities in isolation. Upon entry into the school each new student was assigned a temporary advisor until he or she could select a permanent one. The student also joined that staff member's advising group, the average size of which was 14. Every Friday morning was set aside as meeting time for advising groups. These groups were far more than homerooms. They were support systems; they were forums for discussing issues critical to the operation of the school; and they were social groups. Staff members were expected to keep some of their remaining week free to meet individually with their advisees. It would be difficult to envision the school's highly personalized program functioning in the absence of its considerable commitment to advising.

Control of one's teaching. Teachers, too, exercised great control over their schedules, dividing their time roughly equally between teaching classes, meeting their advising responsibilities, and doing the committee work and paperwork of running a school. The staff met every Wednesday morning from 8:00 until 10:30. School started at 9:15. Perhaps the most convincing evidence of the degree to which control was not an issue in the school is that for an hour and 15 minutes every Wednesday, it functioned quite smoothly without teachers.

Learning in the world. The school's graduation requirements also included the completion of six major experiences or Passages that have been described by Maurice Gibbons (1974) as the Walkabout Curriculum. These six steps to adulthood, as students and staff members referred to them, fell in the areas of *Adventure, Career Exploration, Creativity, Global Awareness/Volunteer Service, Logical Inquiry,* and *Practical Skills.*[7] Advisors and fellow students, through an elaborate network of ad hoc committees, helped students formulate their plans for satisfying their Passage experiences. Passages regularly took students into the community, often to other states, and occasionally all over the world.

Having a say in matters. The school operated on the principle of one person, one vote. Weekly all-school meetings were run by students. Any student or staff member could request that an issue become a topic of Governance. Students also formed effective majorities on two key school committees: Futures, which recommended changes in the curriculum, and Hiring, which reviewed and selected applicants for staff vacancies. All but three of the school's rules were promulgated by Governance. These three exceptions, known as the Three No's, were imposed by adults. The Three No's were no drinking, no drugs, and no sex as a part of any school-related activity.

Trips. During my year there, nineteen extended trips, each heavily subsidized by the school, were taken by groups ranging in size from five to 25 students, each group accompanied by two to five adults. The trips, some longer than two weeks in duration, ranged as far west as California, as far east as the Bahamas, as far north as the Boundary Waters here in Minnesota, and as far south as Mazatlan on the Pacific coast of Mexico. All told, an aggregate of almost 400 students and staff members traveled over 43,000 miles during the year, a total of over 600,000 person/miles. Mounting trips such as these requires effort and conviction. The effort was supplied mainly by the students, who were expected to do much of each trip's planning and preparation. In the process, they became the tight-knit work group that could weather the interpersonal challenges of travelling together for an extended period. The staff's belief that trips are worth the effort was buttressed by the many watershed events—what Wigginton (1975) calls teachable moments—that occurred on them. This paper's length precludes the sharing of many of these anecdotes, but let me share two because they, better than statistics or rhetoric, make the case for experientially-based schooling. Both events occurred in Canyon del Muerto on the fifth day of the Navajo Work Trip, a two-week, 2,500-mile expedition to the Navajo Reservation. The work of the trip was the distribution and planting of 3,000 donated fruit trees, part of the school's continuing effort to replace the thousands of fruit trees that the U.S. Army destroyed in 1863 in its effort to starve the Navajo off of their tribal lands. The trees also functioned as an entree into the culture of a very private people, a gift that prompted the Navajo, in turn, to give of themselves to these Anglo teenagers.

> The day is full of planting fruit trees on farms in the area. Joe Yazzi, a sheepherder with canyon land near our campsite, already has quite an orchard going. It includes some trees that the first Navajo Work Trip planted two years earlier. They are in bloom. The veterans who had been on that trip are elated and Bill Johnson, who has led all three of these trips, almost busts out of his T-shirt with pride. These trees are the first tangible evidence that the efforts of these trips are literally bearing fruit. Joe shares water from his spring with us and we are happy to plant some more trees as compensation. He is over 90 years old, looks 60, and rides a horse as though he's 30. Since the period in which the Spaniards introduced the horse to this region, the Navajo have enjoyed the reputation of being consummate horsemen and Joe's skill in the saddle is evidence that this reputation is well-earned. After the planting, we stand in a tight circle around Joe, resting on our shovels. He shares a little of what life in the canyon is like. Joe's speech is a mixture of English and Navajo and Buddy, a cousin of Vincent's who is acting as our Navajo escort, translates for us. Joe's small house is perhaps 50 yards away. It's a rude structure, about 12 feet square, with walls of tightly-bound sapling trunks. The dwelling seems almost transparent. Its flat roof extends out from its front to form a veranda almost as big as the house. Joe's wife sits silhouetted against the bright sunlight with her hands in her lap in the veranda's deep shade, looking off into the distance. Her clothes are billowy and her hair is drawn tightly back into a bun. The scene has a dignity and wholeness that is little different than it might have been 200 years ago.
>
> Joe tells the kids that a sheep will sometimes find her way up the canyon wall to a spot from which she can't extract herself. Sometimes the herder can't reach the spot and he will shoot her off the canyon wall to reclaim what he can of his investment. At other times, the herder will make the perilous climb to retrieve the marooned animal. The kids listen in rapt silence as Joe tells the story of when, as a young man, he went high up the sheer cliff face after a sheep. He lost his footing and fell. He tells us that he survived the fall by tearing open his large shirt and holding it against the wind as a makeshift parachute. It's an incredible tale but we believe it nonetheless.
>
> As I stand at the edge of the group watching the kids soak up Joe and gazing at Joe's wife in the distance, I consider the many things these kids are learning as they measure themselves against unimagined conditions in a previously unexperienced environment. Their visible respect for Joe—who has thrived for 90 years in a life that they hope to survive for two weeks—approaches veneration. The Navajo have a title of respect—Hosteen—for their elders. The kids don't know the word but their faces nevertheless reveal their feelings for Hosteen Joe Yazzi.

> Late in the day, Jim Zeller and I return to Joe's spring to replenish the group's drinking water. Our walk of close to a mile through lengthening shadows and the stillness of evening occurs mostly in a silence that is broken only by the soft clatter of our plastic water jugs. Jim's a quiet kid, the sort who never causes problems and always does his job. He has handsome dark features. We sit by the spring on our haunches, waiting for the pencil thin flow of water to fill each of the many jugs. The spring, located at the back of a narrow draw off the main canyon, is now cloaked in darkness as the last of the sunlight works its way up the far cliff face. While we wait, we talk.
>
> Jim points to a small stone formation high on the cliff wall and asks, "What's that?"
>
> "It's an Anasazi granary," I say. I go on to describe how the Ancient Ones would wall off niches in the cliff face with stone, sealing their grain in them against the elements and rodents. "It was one way that they stored the food supply they would need to get through the winter. That advance in their technology helped them to stay put long enough to build their remarkable cliff dwellings. It enabled them to maintain a population greater than the one which now inhabits this whole region. That wall is probably a thousand years old."
>
> The story is finished before I realize that I have just taught a very compact little lesson. Unlike almost all of the thousands of lessons I have taught, I sense that this one may be remembered for a lifetime. I savor the moment. As Jim and I crouch, mesmerized by the steady stream of water filling another battered jug, I think about thanking him for asking me about the granary. But I'd have to go into a protracted explanation of why I was doing so, and I rather hope his thoughts are off somewhere else, with the Anasazi. I avoid looking at him in the fear that a glance may break the spell. Instead I gaze silently at the last sliver of sunlight on the canyon rim high above us, enjoying the coolness of the spring on my sunburned face. The peaceful quiet of the darkening canyon is broken only by the evening call of a songbird and by the steadily rising pitch of the water as another jug is filled.[8]

Outsiders often wonder how graduates of such an unusual school fare in College. About 75 percent of the school's graduates go on to some form of postsecondary education. Over the school's 18 years of existence, graduates have been accepted into 60 different colleges and universities, including several Ivy League schools.[9] Because they are quite experienced at governing their own time, Open High School graduates typically experience few of the adjustment problems that plague most college freshmen.

The Handicap of Bigness

Clearly, big high schools face great impediments in mounting programs like Open High School's. The measures we install in them to maintain control are inimical to programs based on personal responsibility and accountability, on trust and diversity. Our attempts to partition big high schools into houses or even alternative programs have achieved only limited success because the massing of so many teenagers in one place prompts control measures that are antithetical to the kinds of teaching, learning, and programmatic autonomy I have described here. To accomplish its programmatic goals Open High School had to achieve a critical anti-mass. It had to be small enough for control issues to be muted, small enough to trust kids as well as teachers, small enough to embrace *risk* as an inseparable element of personal growth.

On this last point, I was struck from my first hours at Open High School with the unusual manner—unusual for a public high school at any rate—in which it dealt with risk. The staff displayed a trusting reliance in the good judgment of teenagers that, at the time, I found downright scary. Coming to understand the staff's and, to almost as great an extent, the students' clear vision of the important role that risk plays in human growth was a major lesson for me. That most schools run away from risk, equate it with liability, and immediately devalue any enterprise that places students in insecure settings is a measure of how different the Open High School's culture was from most public high schools. The culture of schools has attuned most professionals to respond even to relatively innocent new ideas reflexively, immediately building a list of reasons why the new idea won't work. On more than one occasion, I found myself "falling behind" the staff as it encountered a new idea because I had stopped to begin building that list while the staff had pushed on to a consideration of how to realize the idea. The power unleashed in a school that seldom asks why it *shouldn't* do something is formidable.

The Financial Feasibility of Very Small High Schools

My descriptions of Open School's program often conjure up images in readers of an elite school full of little rich kids, a private academy masquerading in public school garb. But the school accomplishes this powerful program on the same funding level that is available to Jefferson County's 14 big high schools. Current student/teacher ratios, for example, seem to be quite workable in very small high schools. The key difference is that such schools with their low needs for control, security, and nonteaching specialists can apply more of their resources to instruction. (They seldom *need* even one full-time administrator; principals of these schools become head teachers.)

The student/teacher ratio is a very public statistic that represents a gross measure of the cost of education. School systems tighten their belts by raising the ratio or improve the "quality" of instruction by lowering it. But a perhaps purposely obscure statistic in most districts is what might be termed the student/non-teacher ratio. I recall a conversation many years ago with the principal of a large Wisconsin high school. The conversation turned to this ratio. I asked him to estimate how many people were on the payroll in his school who had never taught a class. After accounting for administrators, secretaries, counselors, security guards, nurses, cafeteria workers, and custodians, the total exceeded 50. In that high school of 1,800 students, the student/non-teacher ratio was about 36 to 1. The average annual salary of those 50 people today would probably approach $25,000, making the overhead costs of personnel alone for that school about $1,250,000 a year—almost $700 per student. What might be added to the education of the teenagers in that school if even half of those resources could be applied to instruction instead of to the maintenance of the institution? It was just such monies that Open High School used to subsidize its trips. Small, informally organized high schools have support personnel, too, but their structure and culture require far fewer specialists; some of the needs of large institutions (e.g., full-time administrators, disciplinarians, security guards, and even cafeteria workers) simply disappear.[10]

Joe Nathan, one of the organizers of this conference, has described the degree to which overhead costs in the form of specialists can run amuck (1983):

> [I]n Chicago there are big differences among the administrative staffs of the Catholic and public school systems. The Catholic schools, with 250,000 students, employ 35 administrators. The public schools, with 500,000 students, employ 3,500 administrators. One hundred times the number of administrators, for twice as many students. Do the children in the Chicago public schools need all those administrators? (p. 61)

School districts currently employ approximately one administrative staff member for every two-and-a-half teachers.[11] What might happen to American education if even half of public education's overhead costs could be diverted to instruction, to buying more teachers or better teachers or subsidizing trips all over North America? Small high schools cost more money only if one tries to maintain the big-school infrastructure that these schools of critical anti-mass render obsolete. If that infrastructure is dismantled along with big schools more of the education dollar can be directed to what school is supposed to be about: instruction.

Contrasting how these relatively modest expenditures invigorated Open High School's program with the impact that they would have on a big high school reveals an irony. An institution that was nurtured on claims of efficiency requires vast sums of money to make perceptible improvements in it. H. Dean Evans, Superintendent of Instruction for the State of Indiana, for example, estimated in 1990 that the cost of lowering the class size of every classroom in the state by just *one* student—hardly what could be called a perceptible improvement—was $129,000,000. The estimate suggests that our class-size dilemma will be solved only when every student does not have to be watched over by a teacher every minute of the school day. To accomplish that goal, we must look to low-control models that allow students to learn in the absence of teachers. Current funding levels are quite sufficient to mount exciting programs in such schools.

To the skeptical, I recommend the following exercise designed to break one's thinking free of the typical morass of big bureaucracy school finance: Imagine a school district modelled not on the practices of General Motors but on those of a cottage industry. The average per-pupil expenditure in this country and, incidentally, in Minnesota is now about $5,260 a year.[12] Envision a small, highly autonomous school, given that funding level. If the school has 200 kids, its annual operating budget is about $1,050,000. Return 20 percent of that amount—$210,000—to a trimmed-down central administration for its reduced services and for bus transportation. Imagine a low student/teacher ratio, say 20:1. Pay your ten teachers well, say an average of $45,000 a year (including their fringe benefits). Hire a head teacher and pay him or her $60,000. Find an appropriate building for your program in your community and rent it for $7,000 a month plus another $3,000 for utilities. Hire a secretary, a custodian, and a cleaning person at $20,000 each. Budget $1,000 a year for supplies for each teacher and $3,000 for the central office. Put aside $10,000 to buy books each year and $20,000 for computers and A-V equipment. If the idea of trips is appealing, lease three vans, each at $7,000 a year.

That's probably enough to cover their maintenance, but include another $3,000 just to be sure. Put aside $12,000 to subsidize the fuel costs of trips. Now comes the fun: figuring out what to do with the $70,000 that has yet to be spent.

When I play this little game with people they invariably look for the catch. Like a con game, it's too good to be true. We all know that small schools don't work because they're too expensive. The exercise suggests that the expensive part of a transition to small schools is the cost of maintaining the existing big-school, big-bureaucracy infrastructure while giving small schools their fair share of the resources.

Solving the Problem of Time

The first step in improving the conditions of teaching in a high school is to solve the problem of *time*. Good teaching requires time, time to talk to individual students, time to confer with colleagues, time just to escape the pressures of teaching for a few minutes. Dana Orin, an Open High School teacher, described it as spending "quiet hours with students, learning how they feel about the school." We can gain the time that teachers need to spend with individual kids in two ways. We can buy it by introducing extra personnel into the school, the approach that is used almost exclusively now. It is a major factor in the negotiation of each governing contract between a school board and a local teachers' union. We struggle to provide smaller classes or ways for teachers to work with fewer students or for them to have an extra prep period to plan joint efforts with colleagues. The problem with this approach, as we have already seen, is that it is extremely expensive; a vast amount of money must be spent before truly noticeable change occurs.

The second way to give teachers time to teach is to reconceive the high school in ways that free teachers from their current custodial function. As long as students' time is scheduled tightly to keep them under control, teachers' time must also be scheduled tightly. To free teachers we must free kids. To free kids we must be able to trust them. To trust kids, we must forge personal relationships with them that engender accountability. To foster high levels of personal accountability we must achieve a critical anti-mass in high schools.

Making the Transition

The American public high school is a troubled institution. Assailed on all sides for its growing ineffectiveness, it may already be travelling the road to extinction, a victim of its own unwieldy size. But those willing to acknowledge the mounting evidence remain a disorganized minority. Most school people and the public they serve have unconsciously practiced a polite conspiracy of silence about the ineffectiveness of the high school for so long that the resulting mass delusion has become a formidable obstacle to overcome. One example of this phenomenon will bring dozens more to readers' minds:

I recall the experience of a friend who taught phys ed in a rural Illinois high school. My friend, Ellen, got to know this big kid, a junior, who one day confided to her that he didn't know how to read and there seemed to be no way to get help with his problem. Ellen could scarcely believe him, so she began checking around, finding out how her school dealt with the problem of a high school kid who couldn't read. It turned out that he was right; there was no mechanism for helping him. The mass delusion was that everybody learns to read in elementary school—junior high at the latest—and nobody could even function in a high school without being able to read. Therefore, Ellen's high school needed no program to teach kids to read. She ended up teaching the kid to read during lunch each day and by the end of the year he was coping nicely with his schoolwork. With Ellen's help, he had solved his problem.

But how can Ellen's school solve its problem when it engages in a deception so pervasive that it can't even recognize that it has a problem? To do so, people must somehow jump out of the elaborate system of fallacy they've constructed for themselves—no easy feat. Douglas Hofstadter (1979) has explained the concept by relating a visit to a computer chess tournament. The contest featured computer programs trying to best each other at chess. One program, the weakest of all, impressed the experts present by quitting lost games long before they were over. Rather than continuing, machine-like, to grind away at a lost cause it would quickly and rather elegantly resign—like a good human player. The American high school hasn't yet been able to acknowledge that the game is lost. It continues to grind away, machine-like, attempting to find a winning combination of moves where none exists.

The high school can learn something about lost causes from the Pony Express, a major reform of the mail delivery service of the 1850s. The Pony Express was the embodiment of a technology—transporting information by horse—that had been advanced to its inherent capacity. Men and horses were pressed to their physical limits to make a familiar concept meet the increased demands of an expanding country. The Pony Express was more than a system of mail delivery; it had a romance about it—a rider and horse at full gallop, hell-bent for the next way-station—that remains frozen like a Remington bronze in our minds. But the Pony Express lasted barely a decade. It was replaced—almost overnight—by a very different means of delivering information: the telegraph. A message that had taken days of extreme effort to deliver on horseback suddenly could be delivered in seconds, literally with the flick of a finger.

As those who frame educational policy attempt to meet the needs of a changing society they might be advised to consider the Pony Express. Almost all of the current effort to reform the high school is being expended in attempts to improve the current technology. It is a quest for faster horses. It is what is known as a "first-order" exercise in reforming an institution rather than a "second order" exercise in transforming it (Cuban, 1984; Deal, 1990). That we should cling to a familiar idea is understandable; the high school as we have known it is deeply embedded in our social fabric. The Friday night game, the Prom, the impressive buildings are compelling cultural icons that bind whole communities together. They distract our attention as we attempt to consider the high school as a place of learning. But if we think of the comprehensive high school as a technology pushed to its inherent limits, the current debate—especially all the pointing of fingers at "ill-prepared" teachers and "aimless" students—takes on new meaning. Current pronouncements and fact-finding reports begin to sound too much like calls for more way stations so that the horses will be fresher and faster.

The debate has prompted me to jump out of the system, to seek a solution so different from current practice that it might well be termed a new technology. Many refer to it today as the paradigm shift. It is a shift that schools like Open High School have already accomplished. More accurately, these schools were conceived from their beginnings as paradigm institutions.

- These schools have distinct identities. The rules and the values that underlie them have been shaped by the members of their school communities. They attract new members to the community—both students and teachers—by emphasizing their uniqueness.

- Although they still reside inside school districts with comparatively rigid, multi-layered hierarchies, their internal organizational structures are very flat. Open High School, for example, referred to all who worked in the school, from the principal to teacher's aides, as staff members in order to mute the traditional professional pecking order.

- They tend to be working democracies with regularly scheduled "town meetings" that operate on the principle of one person, one vote. Still, school boards, wary of t[illegible]ing so much control over to students, sometimes require that the head teacher hav[illegible]eto power over all decisions made by the school community, an intervention that oft[illegible]es unused.
- Their programs are oriented toward individual learning rather than group teaching. They tend to be tailored to individual needs and interests. Pressures to conform disappear with the need to control.[13]

Some practitioners already understand the paradigm shift, feel relatively comfortable with it, and are doing their best to embrace it. Most of us, however, find it an intellectually interesting but highly impractical concept. We must, through policy formation and perhaps even the enactment of laws, build a tolerance of new paradigm efforts in the public sector. And we must give these schools their *fair* share of the resources. Much of that money is out-of-reach, hopelessly entangled in the elaborate web of policies and statutes that govern school funding in our states. That structure cannot simply be dismantled. But states can take steps gradually to introduce a second funding structure specifically designed for these new schools.

The very survival of the *public* high school may require a structure that enables and a political climate that allows us to create new schools. The disbelievers must allow the believers to make such schools available to those who are ready for them. No one else need attend these new schools for them to fulfill their role in the evolution of school restructuring. We desperately need models—workable prototypes that abandon the industrial model of schooling that has brought us schools that are bereft of personal relationships and enamored with bigness. Some school districts and even some whole states, such as Minnesota, have enacted school choice plans that lay the groundwork for the sort of tolerance that is needed. The new schools can serve as navigation lights pointing the way for the rest of us, if we are ready to risk the journey. The smaller, more personal schools that may develop in the coming years will not all be alike. Open High School is just one of many different ways to reconceive the public high school. What other wonderful surprises await us once teachers working in small groups are set free to dream of different kinds of schools?

Endnotes

1. The source of this information is unclear: the two lists were apparently compiled by Fullerton's Police Department and the California Department of Education.

2. Children also mature physically at an earlier age than they did when the high school was conceived. The average age of the onset of puberty has been descending about one year in each recent generation.

3. I reluctantly resort to coining a term, particularly one stated in the negative. I even went as far as to call upon physicist friends for examples of such a phenomenon in the physical world, hoping that a ready-made analogy existed. The process of fusion—the opposite of fission, from which the concept of critical mass is derived—comes close. For fusion to occur, as I understand it, very small nuclei must be assembled, releasing large amounts of energy in the process. The analogy seems apt in that the energy (and enthusiasm) generated in small, personalized schools produces additional strong interactions among teachers and students, which, in turn, create yet more energy and enthusiasm.

4. At the time of my stay, the school was located in Evergreen, Colorado, and was called the Jefferson County Open High School. Known informally as Mountain Open, the school merged in 1989 with Tanglewood, a philosophically similar preschool through ninth grade elementary/middle school that was also a part of the Jefferson County School District. Both schools moved into a former junior high school building in Lakewood to become one preschool through twelfth grade school named the Jefferson County Open School. I describe in detail how Open High School functioned in my forthcoming book, *A Real Logical Way* (in press).

5. The school currently has a waiting list of approximately 1,000 students for all grades.

6. The 24 Graduation Expectations covered three areas of effort—what the staff called domains. The *personal domain* included expectations such as meeting one's commitments to self and to others and being willing to take risks and accept challenges. The *social domain* encompassed expectations such as being able to confront others constructively and work effectively in small groups. The *intellectual domain* contained the familiar communication skills and the traditional content areas such as science and math, but also included the cultivation of a sense of humor.

7. See Gregory (1991) for a detailed description of how Passages worked at Open High School.

8. Adapted from my forthcoming book about the school (Gregory, in press).

9. This figure was obtained from a current list provided by the school.

10. The transformations that occur in most "disruptive" youth upon entering a small, informally-structured alternative school are well documented. Jerry Smith's and my repeated observation of these individual success stories finally led us to label big high schools as provocateurs of violence (Gregory & Smith, 1987). In 1975, this body of evidence led a Senate subcommittee on crime and violence in the schools to recommend the development of many more such schools to solve the problem (Committee of the Judiciary, 1975). Indeed, the successes of these schools with these students have influenced the definition of "alternative school" over the years until now, in many states, it has come to mean a school *for* tough-to-teach kids.

11. Unpublished data from the U.S. Department of Labor's "Current Population Survey, 1986-87." Cited by Darling-Hammond (1990).

12. The figure seems high but it encompasses all costs, including buildings, which are not typically part of such estimates. According to statistics compiled by the National Education Association (1991, p. 59) the 1990-1991 average of the state averages was $5,261. New Jersey at $9,159 had the highest average of the states. The lowest was Utah with $2,993. Minnesota's average expenditure was $5,260.

13. See, for example, Peters's *Thriving on Chaos* (1987), Kearns and Doyle's *Winning the Brain Race* (1988), Goodlad's *A Place Called School* (1984), and Gregory and Smith's *High Schools as Communities* (1987). See Burrello & Gregory (n.d.) for a more complete set of contrasts between new paradigm and old paradigm schools.

References

Barker, R.G., & Gump, P.V. (1964). Big school, small school. Stanford, CA: Stanford University Press.

Burrello, L. C., & Gregory, T. B. (undated). The paradigm shift: Schools turned upside down. Unpublished paper available from authors. Bloomington, IN: Indiana University School of Education.

Carnegie Task Force on Teaching as a Profession (1986). A nation prepared: Teachers for the twenty-first century, New York: Carnegie Forum on Education and the Economy.

Coleman, J. S. (1972). The children have outgrown the schools. Psychology Today, 5(9), 72-75, 82.

________ (1987). Families and schools. Address presented at the annual meeting of the American Educational Research Association, Washington, DC, April 21.

Committee of the Judiciary (1975). Our nation's school's—A report card: "A" in school for violence and vandalism. United States Senate Subcommittee to Investigate Juvenile Delinquency. Washington, DC: U.S. Government Printing Office.

Conant, J. B. (1959). The American high school today: A first report to interested citizens. New York: McGraw-Hill.

Cuban, L. (1984). How teachers taught: Constancy and change in American classrooms, 1890-1980. New York: Longman.

Darling-Hammond, L. (1990). Achieving our goals: Superficial or structural reforms? Phi Delta Kappan, 72(4), 286-95.

Deal, T. E. (May, 1990). Reframing reform. Educational Leadership, 6-12.

Fowler, W. J. Jr. (1989). School size, school characteristics, and school outcomes. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco.

Frymier, J. (1987). Bureaucracy and the neutering of teachers. Phi Delta Kappan,68(1), 9-14.

Gibbons, M. (1974). Walkabout: Searching for the right passage from childhood and school. Phi Delta Kappan, 55(8), 596-602.

Goodlad, J. I. (1984). A place called school: Prospects for the future. New York: McGraw-Hill.

Gregory, T. (1990). Mountain Open High School: Who's chosen in the promised land? Paper Delivered at the Twelfth Annual Conference on Curriculum Theory and Practice, Dayton, Ohio.

________ (Spring-Summer, 1991). Walkabout day. Changing Schools, 1-5, 10.

________ (in press). A real logical way: Life on the frontiers of schooling. (working title), New York: Teachers College Press.

Gregory, T. B., & Smith, G. R. (1983). Differences between alternative and conventional schools in meeting students' needs. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal.

________ (1987). High schools as communities: The small school reconsidered, Bloomington, IN: Phi Delta Kappa Foundation.

Hofstadter, D. R. (1979). Godel, Escher, Bach: An eternal golden braid, New York: Vintage Books.

Johnson, S. M. (1990). Teachers at work. New York: Basic Books.

Kearns, D. T., & Doyle, D. P. (1988). Winning the brain race: A bold new plan to make our schools competitive. San Francisco: ICS Press.

Nathan, J. (1983). Free to teach: Achieving equity and excellence in schools. Minneapolis, MN: Winston Press.

National Education Association (1991). Rankings of the states, 1991. Washington, DC: The National Education Association.

Peters, T. (1987). Thriving on chaos: Handbook for a management revolution. New York: Alfred Knopf.

Powell, A. G., Farrar, E., & Cohen, D. K. (1985). The shopping mall high school, Boston: Houghton Mifflin.

Reigeluth, C. M., Norris, C.A., & Ryan, D.F. (1991). Sirius-A: Navigating by the stars. Bloomington, IN: School Restructuring Consortium, Indiana University.

Sarason, S. (1990). The predictable failure of educational reform: Can we change course before it's too late? San Francisco: Jossey-Bass Inc., Publishers.

Sedlak, M. W., Wheeler, C. W., Pullin, D. C., & Cusick, P. A. (1986). Selling students short: Classroom bargains and academic reform in the American high school. New York: Teachers College Press.

Sizer, T. R. (1984). Horace's compromise: The dilemma of the American high school, Boston: Houghton Mifflin.

Smith, G. R., & Gregory, T. B. (1982). The Impact of Social Climates: Differences Between Conventional and Alternative Schools. Educational Horizons, 60(2), 83-89.

_______ & Pugh R. C. (1981a). Meeting Students' Needs: Evidence for the Superiority of Alternative Schools. Phi Delta Kappan, 62, 561-64.

_______ (1981b). The SAS inventory: A measure of the extent to which alternative and conventional high schools meet student needs. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles.

Smith, G. R., Tourgee, B., Turner, M., Lashley, C., & Lashley, L. (1992). Restructuring public schools: Theorists versus practitioners. Bloomington, IN: Indiana University, Unpublished Paper.

Wigginton, E. (1975). Moments: The Foxfire experience, Kennebunk, ME: Institutional Development and Economic Affairs Service, Inc.

Modern Conceptions of Educational Quality and State Policy Regarding Small Schooling Units

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Introduction

In this paper, I seek to reconcile emerging ideas about the improvement of schools with longstanding policy concerns about small schools and school districts. The exploration is timely given the states' renewed interest in questioning the viability of small schooling units; it is also timely because of changes in how states view their responsibility for improving public education.

The paper addresses four questions. The first asks about trends in the conceptualization and measurement of school quality. The next two questions address the specific concerns of small schools and school districts. The fourth question invites recommendations for policy makers concerned with these issues.

Question I: What are the best indicators of the quality of education offered by a school or district?

Important progress is being made on two fronts with respect to the conceptualization and measurement of educational quality. First, progress has been made in the assessment of student learning; second, more refined methods for measuring school processes are available.

Learning Outcome Indicators

Important developments in the assessment of human capabilities have taken place recently. New opportunities are available for states to move away from conventional multiple-choice assessment instruments and toward what are known as authentic or performance-oriented examinations.[1]

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[1] Since the middle 1980s, more than 40 states have adopted writing samples instead of multiple-choice examinations to assess children's writing abilities (Pelavin 1992).

These new approaches to assessment promise to measure human performance that is relevant for future economic and social success (New Standards Project 1992).

The availability of these new "more relevant" indicators of learning is prompting more aggressive efforts to measure schooling effects. Two types of indicators are becoming available. One is based on measures of absolute performance. Using this type of indicator, a high quality school would be a school with a high average performance, after the effects of social background have been removed.[2] There also could be interest in one portion of the achievement distribution. In this light, the high quality school might be the school with high performance within the bottom (or top, or some other) quartile of the achievement distribution, once the effects of social class are removed.

Second, learning outcome indicators can be based on measures of improvement, rather than absolute performance levels. According to these measures, high quality schools will be those registering the greatest improvement. Again, the focus might be on improvement in average scores or on some particular range within the distribution.

A number of states have moved to incorporate these emerging measures of quality into their school finance formulae. In these states, high performance is rewarded monetarily, either at the school or individual teacher level.[3]

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[2] Attempts to remove social background effects raise a host of statistical and measurement issues. For an overview of what is involved, plus policy recommendations, see Meyer (1991).

[3] Schools in South Carolina, for example, receive approximately $30 per pupil if the school registers a sufficiently large improvement along several dimensions in relation to a comparison group. South Carolina also provides rewards that accrue to individual teachers based on measures of pupil performance.

Schooling Process Indicators

Efforts are also under way to develop more refined measurement of schooling processes.[4] Much of this work has focused on science and mathematics education and includes efforts to specify what a high quality program entails. These input oriented efforts to define quality must contend with the fact that research linking inputs such as teacher experience, training, class size, and the like to measures of pupil achievement has tended to be inconclusive (Hanushek 1986). However, recent research suggests that more refined measures of important inputs such as the knowledge teachers have of the subject matter have positive effects on pupil achievement.[5] As confidence increases in selected inputs, the high quality school can be identified by its supply of key inputs.

Progress also has been made to use process-oriented indicators to measure school success at producing educational opportunities for students. These indicators examine phenomena such as the breadth and depth of a curriculum (see Porter 1991). Progress also is being made to develop more refined measurement of how accessible certain educational opportunities are for students. Monk (1992), for example, proposed to measure accessibility of a given course within a school's curriculum by examining how often it appears in a master schedule and the proportion of students who are eligible to enroll.

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[4] See, for examples, Koretz (1992); McDonnell, et al. (1990); Oakes (1990); Porter (1991); Shavelson, et al. (1987); and Stecher (1992).

[5] See, for examples, Ferguson 1991, Hanushek 1992, and Monk 1992. For an overview of this type of research with an emphasis on implications for policy making, see Monk, in press.

As we approach the midpoint of the 1990s, it appears that policymakers will be able to draw upon two conceptually distinct but closely interrelated indices of educational quality. The availability of these new standards has far-reaching implications for how states approach their small schools and school districts.

Question II: What is the relationship between a school's size, cost, and quality.

Good theoretical reasons exist for expecting larger-sized organizational units to be able to operate more efficiently than otherwise identical smaller units. More concretely, the expectation is that larger-sized units will be able to produce the same outcomes at a lower unit cost.[6]

If the theory is applicable to the production of educational outcomes within school settings, it ought to be possible to show that larger sized schools either offer richer instructional programs or operate at lower costs.[7]

In the mid-1980s, a group of researchers began to look systematically at the degree to which school size translated into richer curricular offerings within secondary schools.[8] The findings of this research can be summarized as follows:

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[6] However, there are also reasons to suppose that there may be a limit on the degree to which larger size translates into improved efficiency. Thus, according to the theory, it is reasonable to conceive of an "optimal" size for organizations.

[7] There are numerous reasons for being skeptical about how applicable conventional economic theory of scale is to education. For a more detailed discussion of the limitations involved and the kinds of assumptions that need to be made, see Monk (1990, Chapter 13).

[8] See, for examples, Barker (1985); Haller, et al. (1990); McKenzie (1989); Monk (1987); Monk and Haller (in press); and West, et al. (1985).

1. The effect of school size on curricular offerings varies depending on the subject area of the curriculum. For example, school size has much less impact on course offerings in social studies and science than in foreign languages and the performing and visual arts.
2. The strength of the relationship between school size and curricular offerings diminishes as schools become larger. Increases in the size of very small schools are associated with greater curricular gains than increases in the size of larger schools.
3. School size is related to the types of courses that are added within subject areas. In particular, school size is positively related to the share of the academic curriculum devoted to advanced and remedial courses. In most subjects, advanced courses grow more rapidly with school size than do remedial courses.
4. Substantial variation in curricular offerings among high schools remains after the effects of school size are removed. There are small schools with rich curricular offerings just as there are large schools with modest offerings. School size alone explains roughly half of the variation in course offerings among high schools.
5. The mere presence of a course in a curriculum is no guarantee of widespread student participation. Remarkably small percentages of students within larger schools take advantage of those courses found only within large school curricula.

Less research attention has been devoted to the tax-savings dimension of the purported benefits of larger school size. In part, this is because school level fiscal data are difficult to obtain. A comprehensive analysis where both instructional and cost consequences of differences in school size has yet to be conducted. Moreover, most of the existing research concerns cross-sectional differences among different sized schools. The cross-sectional differences may be quite distinct from changes that arise out of shifts in school size, particularly those imposed by external authorities such as the larger state or school district.[9]

Question III: What is the relationship between a school district's size, cost, and quality? Economies of scale can exist at the school district level and typically involve the underutilization of central administrative resources. Much of the "problem" stems from the indivisibility of such resources. While some districts have attempted to "share" superintendents as a means of offsetting this problem (see Sederberg 1985), it can be difficult for small administrative units to make complete use of central administrative talent. This difficulty is due partly to the nature of the administrative duties. It is difficult to split an individual between, say, classroom and administrative responsibilities. Yet, if the individual is assigned full-time to administrative duties, there may not be enough work to employ this individual fully.

The efficiency problem is compounded by the degree to which the small district must compete with larger districts for administrative talent. This tends to be a fairly obvious instance of inefficiency, and several states have taken steps to cut central administrative costs by attempting to consolidate district administration.[10] The reasoning seems to be that if two districts could be merged or consolidated in some way, taxpayers could hire one superintendent instead of two and pocket the resulting savings.

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[9] Some case studies have been made of the effects of consolidation policies on the internal operation of schools and school districts. See, for examples, Monk and Haller (1986) and Peshkin (1982).

[10] Rhode Island is a good recent example (21st Century Education Commission 1992).

There are several reasons for being skeptical about such reasoning. First, while the scenario outlined above seems straightforward and appealing, the reality may be quite different. If the merged district responds by hiring an assistant or deputy superintendent to help the superintendent fulfill his or her duties, the savings to taxpayers can be substantially eroded. In fact, it would be possible to face higher administrative costs following the reorganization, particularly if community turmoil is a by-product.

Second, it is important to remember that central administrative costs are a relatively small portion of school districts' budgets. The real savings associated with reorganization and consolidation strategies arise to the extent that average class sizes rise with no loss in student performance (and no increase in teacher compensation). Inefficiency in the deployment of central administrative resources may be real in smaller districts, but its magnitude tends to be small when measured in dollars. It is not obvious that these relatively small potential savings will be worth the unrest that state-inspired efforts to promote district consolidation can generate. In short, far more cost/effective means of improving the efficiency of small school districts may be found, and a prudent state should focus on these other areas. Moreover, less conventional district reorganization strategies are available to states. These strategies involve what have been called cross-function reorganizations. They are described in the response to Question IV.

Question IV: Based on existing research, what advice can be offered to local school boards and state policymakers regarding school and school district size?

While the existing research is not as conclusive as policymakers might wish, it does point toward several new policy directions. First, it is important for state and local officials to realize that a larger school or district enrollment is not sufficient in itself to achieve desirable results. It is quite possible for large schools to exist with inadequate curricular offerings. Similarly, it is quite possible for students not to take advantage of courses that become available in larger settings. Moreover, evidence is accumulating that suggests that access to important specialized courses can be quite restricted even in quite large schools (due primarily to tracking and grouping policies). Thus, while small school or district size may be a real constraint on the ability of school officials to offer comprehensive programs, merely to remove the constraint is not sufficient. Further state involvement appears to be warranted to ensure that scale economies are fully realized.

Second, state officials, in particular, need to understand that recommended school sizes have been declining over time. The modern school reform movement of the 1980s and 1990s emphasizes the importance of restructuring education, giving decision makers at local levels more autonomy, and establishing "schools within schools" in settings where the school has been judged as too large. It is ironic to contrast these initiatives with the incentives and other parallel efforts that states make to encourage school and school district consolidations (Haller and Monk 1988).

Third, policymakers need to be more attentive to the unique features of each school or district reorganization. The case studies on this topic suggest that each reorganization is highly individualistic. This reduces the role of "expert knowledge." Reorganization advocates must confront the reality that each reorganization is unique and that experiences gained elsewhere will be relatively inapplicable.

Fourth, policymakers need to realize that as measures of learning outcomes become more refined and more widely available, it will become less and not more important for the state to specify preferred district and school size and organizational structure. It seems clear that we are moving toward accountability systems that are driven by measures of outcomes. The state is, in effect, saying to its schooling units: "How you go about your business is your concern, but we will hold you accountable for achieving certain results." In such a world, the state will care less whether the district or school is large or small, and more about whether the students reach the chosen threshold learning levels.

This point also applies to the more refined school process indicators that are becoming available. A state might stipulate that it expects to see a calculus course in every secondary school's mathematics curriculum. How the school accomplishes this goal would be a matter of local concern. The challenge here is for the state to devise ways to ensure a minimum level of quality in the opportunity without dictating how the district (or school) must conduct its affairs.

Fifth, state and local officials need to remain receptive to novel approaches to the reform of organizational structures. In particular, they need to remember that the remaining small schools and school districts in this nation are almost without exception "hard cases" that probably do not lend themselves to conventional reorganization solutions.

Throughout the nation, efforts have been made over the years to reduce the number of small schooling units. These efforts have been remarkably successful, and far fewer schools and school districts exist today than at the turn of the century. Nevertheless, a substantial number of quite small units remain, and these units are small, presumably not for a lack of effort to reorganize them into larger units.

In some of these places, aggressive attempts have been made to close schools and reorganize districts. Bitterness and skepticism about the motives of the state can linger for years in the aftermath of such failed attempts. Other locations face such massive barriers to reorganization that they have not even seriously attempted to reorganize. Some of these barriers may be geographic; others may stem from irreconcilable social differences across communities. The point is that the remaining small districts and schools will not be easily reorganized using conventional remedies, even if a reorganization is quite defensible given objective measures of program quality and taxpayer burdens.

In place of the conventional "all or nothing" reorganization approach typically sought by state departments of education, a range of alternative approaches has emerged. State and local policymakers are well advised to consider seriously these alternative approaches to reorganization. They are briefly sketched below; additional information is available elsewhere.[11]

A. Cooperatives and clusters. It seems abundantly clear that no all-purpose administrative structure is capable of fostering cooperation in the delivery of a wide range of substantive educational services. In some settings, more formal structures are warranted; in others, a more flexible arrangement has been shown to have beneficial results (Nachtigal 1984). Greater sensitivity to the difficulties inherent in cooperating across organizational boundaries is warranted. Research on this topic is beginning to be conducted and should be helpful to policymakers.[12]

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[11] See Monk (1988); also see Monk and Haller (1986).

B. Locally designed partial reorganizations. Reorganizations are not always comprehensive. It is possible, for example, for the reorganization to be phased in gradually over time. It is also possible for remnants of the prior organizational structure to remain, perhaps for some fixed period of time. For example, two school districts coming together in a union might agree at the outset that a certain school will remain open and serve certain grade levels for some period. These are examples of how local communities can design a reorganization that suits the particular needs of the affected communities. In their recommendations to the New York State Legislature, Monk and Haller (1986) encouraged the state to give the affected communities a larger say in the design of reorganization possibilities.

C. Cross-function reorganizations. Finally, there are the cross function reorganizations mentioned earlier in conjunction with district level inefficiencies. Rather than reorganize separate school districts into larger administrative units, the goal is to bring into a single administrative structure the numerous social services that are provided by local communities. The result would be a single administrative unit in a community that would be responsible for delivering a wide range of services, including education. The local unit might handle police, health, sanitation, and recreation, to name just a few of the possible services in addition to education. Of course, specialized administrative talent would be necessary for specific duties (e.g., teacher evaluation), but such services could be provided on a contractual basis with the state or a neighboring school district.

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[12] See Galvin (1990), for an example.

While cross-function reorganizations contain certain drawbacks, the appeal of a single administrative unit located in a small rural population center has considerable appeal and counts as a promising alternative to conventional school district reorganization.

One final point is important. Changes in educational technology could have immense implications for the organizational structuring not only of small rural schools but of all kinds of educational endeavors. To date, progress has been slow, but the potential is real. It is a worthy area for future research and development. For our purposes, we need to recognize that planning with respect to the organizational structuring of small schools and districts is necessarily contingent upon the development of educational technology.

References

Barker, B. (1985). Study reporting secondary course offerings in small and large high schools. Paper presented to the Rhode Island Department of Education, Providence, RI.

Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. Harvard Journal on Legislation, 28(2), 465-498.

Galvin, P. (1990). Determinants of school district participation in regional cooperative services: The case of New York State's BOCES. Unpublished doctoral dissertation. Department of Education, Cornell University.

Haller, E. J., & Monk, D. H. (1988). New reforms, old reforms and the consolidation of small rural schools. Educational Administration Quarterly, 24(4), 470-483.

Haller, E. J., Monk, D. H., Spotted Bear, A., Griffith, J., & Moss, P. (1990). School size and program comprehensiveness: Evidence from high school and beyond. Educational Evaluation and Policy Analysis, 12(2), 109-120.

Hanushek, E. A. (1986). The economics of schooling: Production and efficiency in the public schools. Journal of Economic Literature XXIV(3), 1141-78.

Hanushek, E. A., Batista Gomes-Neto, J., & Harbison, R. W. (1992). Self-financing educational investments: The quality imperative in developing countries. Typescript, University of Rochester.

Koretz, D. (1992). Evaluating and validating indicators of mathematics and science education RAND, N-2900-NSF.

McDonnell, L.M., Burstein, L., Ormseth, T.H., Catterall, J.S., & Moody, D. (1990). Discovering what schools really teach: Designing improved coursework indicators. RAND, JR-02. June.

McKenzie, P. A. (1989). Secondary school size, curriculum structure, and resource use: A study in the economics of education. Unpublished doctoral dissertation, Monash University.

Meyer, R. H. (1991). Educational performance indicators and school report cards. Paper presented at the annual meeting of the Southern Economic Association, Nashville, TN.

Monk, D. H. (1987). Secondary school size and curricular comprehensiveness. Economics of Education Review 6(2), 137-150.

Monk, D. H. (1988). Disparities in curricular offerings: Issues and policy alternatives for small rural schools. Policy Issue Paper issued by the Appalachian Regional Educational Laboratory, Charleston, West Virginia.

Monk, D. H. (1990). Educational finance: An economic approach. New York: McGraw-Hill.

Monk, D. H. (in press). Education productivity research: An update and assessment of its role in education finance reform. Educational Evaluation and Policy Analysis.

Monk, D. H. (1992). The content preparation of secondary mathematics and science teachers and pupil achievement. Typescript, Department of Education, Cornell University.

Monk, D. H. (1992). Incorporating outcome equity standards into extant systems of educational finance. Paper prepared for the New York State Equity Study Group. Typescript, Department of Education, Cornell University.

Monk, D. H. and Haller, E. J. (1986). Organizational alternatives for small rural schools: Final report to the New York State Legislature. (ERIC Document ED 281 694). Department of Education, Cornell University.

Monk, D. H. and Haller, E. J. (in press). Predictors of high school academic course offerings: The role of school size. American Educational Research Journal.

Nachtigal, P. (1984). Clustering for rural school improvement. Aurora, CO: Mid-continent Regional Educational Laboratory.

New Standards Project. (1992). Proposal for 1992-1995. Author.

Oakes, J. (1990). Multiplying inequalities: The effects of race, social class, and tracking on opportunities to learn mathematics and science Santa Monica: CA: The RAND Corporation.

Peshkin, A. (1982). The imperfect union: School consolidation and community conflict. Chicago: University of Chicago Press.

Pelavin Associates (1992). Evaluating education reform: Assessment of student performance. Author.

Porter, A. C. (1991). Creating a system of school process indicators. Educational Evaluation and Policy Analysis, 13(1), 13-30.

Sederberg, C. H. (1985). Multiple District Administration for small rural schools. Rural Education, pp. 19-24.

Shavelson, R., McDonnell, L., Oakes, J., Carey, N., & Picus, L. (1987). Indicator systems for monitoring mathematics and science education. RAND, R-3570-NSF. August.

Stecher, B. M. (1992). Describing secondary curriculum in mathematics and science: Current status and future indicators. RAND N-3406-NSF, Santa Monica, CA.: The RAND Corporation.

21st Century Education Commission (1992). Educating all our children. Report of the 21st Century Education Commission to the Rhode Island Legislature and Governor. Author.

West, J., Miller, W., & Diodata, L. (1985). An analysis of course offerings and enrollments as related to school characteristics. (ERIC Document ED 262 011). Evaluation Technologies Incorporated, Arlington, Va.

Remapping the Terrain:
School Size, Cost, and Quality

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Introduction

> There are two important streams of research on school size. The first reflects an economies of scale argument about schooling, including concerns about the available resource strength of the school and possibilities for specialization of instructional programs. The second line of work directs attention to the influences of size on the bureaucratic formalization of social interactions within the school, and the consequences which flow from this. These two perspectives on school size lead in opposite directions. The economies of scale argument implies that benefits for academic learning should occur as a result of the consolidation of effort in larger schools. In contrast, the social interactional focus suggests that 'small is beautiful', with greater informality and higher levels of social engagement more likely in such settings. - *High School Organization and its Effects on Teachers and Students*, Anthony Bryk, et al.

The debate resulting from these two perspectives is ongoing and, as a headline of a Chicago paper announced on the recent presidential debates, it has resulted in "Lots of Fury, But No Knock-out Punches." In all probability, this will continue to be the case, for where one stands on this issue is determined by where one begins the argument. If one enters the argument from a traditional, industrial, *organizational* perspective, the only possible conclusion is that there are economies of scale to be realized from consolidating small schools into larger schools. This assertion is given some credence by Fox (1981) and others who suggest that very small schools/districts may experience higher per pupil costs than mid-range size schools. Just where the diseconomies of scale begin to kick in is very much dependent on the contextual variables of isolation and terrain. There are similar findings at the other end of the scale, with very large districts also experiencing higher costs but for a different set of contextual reasons, e.g., a disproportionate number of students with special needs.

Imbedded in the industrial organizational perspective is the conventional wisdom that bigger is better. Quantity is equated with quality. The more courses offered, the more specialized the teachers, the more books in the library, the better the education. And the work of Monk and Haller (1986) would suggest that that may indeed be true, up to a certain point—the point of diminishing returns being reached as high school enrollments (top four grades) approach 400.

If, on the other hand, one enters this debate from the perspective of the individual student, the above arguments are not very persuasive. Barker and Gump (1964), in the early sixties, argued that central to good education is the engagement of students in the various aspects of the schooling process. As might be expected, the proportion of students who participated in district music festivals and dramatic, journalistic, and student government competitions was highest in high schools with enrollments between 61 and 150, with participation being three to twenty times as great as in schools of 2,000 or more. What was surprising, however, was that academically, small-school students took more courses, with greater variety, than urban students who tended toward more specialized programs even though large schools offer a greater range of courses. The authors concluded that "it may be easier to bring specialized and varied behavior settings to small schools than to raise the level of individual participation in large schools."

There are studies upon studies, most often conducted at the state level, and most often triggered by school finance and/or school consolidation, which try to deliver the knock-out blow as to whether or not large schools or small schools offer better quality programs or are more, or less, costly. None have been successful. The answer is always "It depends." What does seem to be clear is that chasing the dream of optimal size is not productive; quality education can be found in small schools as well as large schools.

After reviewing the research on size, cost, and quality, I am persuaded that (1) seeking economies of scale through school consolidation are, at best, elusive, (2) as we pursue school reform in search of better education, increasing numbers may increase, not decrease costs, (3) to the extent that closing schools contributes to the demise of rural communities, the dollars saved are a high price to pay for the loss of those communities.

In the remainder of this paper, I would like to advance a third stream of thinking concerning the questions of school/district size, cost and quality—a stream which looks at this set of issues from the perspective of the community or the society served by public education. More specifically, I would like to discuss the issues of school/district size, cost, and quality from the perspective of **maintaining healthy viable communities.**

Sustainable Communities

This stream of thinking is based on two propositions. First, **the fabric of society consists of healthy, viable communities inhabited by productive, informed citizenry concerned with the well-being of others and the condition of the planet as well as their own self-interests.** Second, **a necessary component of a healthy, viable community is a quality system of education.**

The concept of community has many different dimensions and meanings. It is the place where we live, and it is a group of people who hold similar values. Community is where we work and where we play, where we educate our children, where we go to the doctor, and where we attend church. It is where we produce and purchase goods and services. The adequacy of a community tends to be defined by the extent to which the many functions and dimensions of community life are fulfilled. However, with the industrialization of society, the functions of community have become more and more specialized. There are products to be purchased and services to be performed that can only be found in a limited number of places (for example, organ transplants). And, while local communities were at one time more economically self-sufficient, it is now accepted that they are a part of a regional, if not international, economy.

With the unfolding of industrialization, rural communities became the headwaters for an extractive society. Agriculture, mining, fishing, and forestry all remove resources from rural areas to support life in urban areas. Public education, both in what it has taught and the process of schooling, has extracted the human resources to fill the needs of an urban/industrial labor force. As long as natural resources were perceived to be unlimited, and as long at the urban labor force continued to expand, this system worked, at least for urban America. It was never in the interests of rural America. And now the limits on resources, the limits of industrialization, and the interests of rural people converged, forcing us to reexamine the usefulness of these policies and practices.

The dynamics of an extractive society resulted in pitting rural communities against urban communities in a zero sum game. Rural interests inevitably lost. Daniel Kemmis in *Community and the Politics of Place* argues that we no longer have the luxury of choosing up sides. The health of an urban area is dependent upon the health of the surrounding rural areas which that urban area serves. Economies, to be viable, must consider the well-being of rural communities as well as urban communities that exist within a geographic region. Unfortunately, for many rural communities there have been no good choices. On the one hand, there are those communities that are caught in the downward economic spiral with the accompanying decline in population. Absent a change in dynamics, these communities will continue to get smaller and smaller and eventually die. On the other hand, there are those rural communities in recreation areas or adjacent to urban centers that are growing up to be cities, losing their rural characteristics. If we are to maintain a viable rural sector in society, we must find the middle ground, assisting communities to become sustainable within the ecological limits of that particular place.

Sustainability is a concept that arose in agriculture as a reaction to the industrial-model, "production at all costs" emphasis of agricultural policy in this country. Defined as a process, the goal of sustainable agriculture is permanence in production, stewarding the land with an emphasis on its carrying capacity and renewal (Strange, 1991). Communities must also be concerned with the notions of carrying capacity and renewal.

A reaction to the sense of loss of community life appears to be a growing desire to find ways of creating new order in our lives, to reestablish a sense of coherence in how we live. What is the role of schooling in working towards the establishment of sustainable communities? Can schools provide students with a high quality education as they perform this function? At what costs? The remainder of the paper will focus primarily on rural communities since they are most obviously at risk. Three areas will be discussed: the relationship between schools and communities, an emerging definition of educational quality that is based on that relationship, and the interactions among size, cost, and quality. The general notions presented are equally important for larger urban and suburban communities.

Schools and Communities

Rural schools and rural communities are tightly linked and highly interdependent. A strong, vital rural community is dependent on a high quality education program. In order to have a high quality education program, one must have a strong, vital community to provide the necessary resources for the operation of that school. We know that when a community loses its school, a severe blow has been dealt that community's future. In many, if not most, rural communities the school is one of the largest economic enterprises in the community. It has the largest budget, often the finest facility, the largest cadre of well-trained personnel. It is often the only remaining viable public service agency connecting the community to the grid of public services. A fairly obvious concern of rural communities is, or ought to be, how well do these institutions serve the rural community? Where do the financial resources get spent, either directly by the district or by those on the payroll? How many of these public dollars feed back into the local economy?

As important as these resources are to the economy, much more important is what happens as a result of the educational process. We invest our tax dollars and the community's most precious resource, its young people, in the system of public education and then measure our success by how many of the graduates leave to continue their education or find employment elsewhere. Most of them never return. If this one-way flow of resources continues long enough, the rural community withers away and dies. And across the country this is exactly what has happened. So if the larger educational cost issues relate to maintaining viable rural communities, the question becomes: Can education be redesigned in such a way that it is of high quality and not extractive of human resources in support of an urban industrial labor force?

Can the cost/effectiveness issues that drive school consolidation be recast in terms that include community development?

What Do We Mean By Quality Education?

Before we can talk about school and district size, cost, and quality, some discussion is needed concerning what we mean by **quality of education.** A legacy of industrialization and its inherent need for specialization has been the disconnectedness of education from the ongoing life of society and the communities which it is to serve. Elie Wiesel, in an address to the Global Forum in Moscow, recently said of education: "It emphasizes theories instead of values, concepts rather than human beings, abstraction rather than consciousness, answers instead of questions, ideology and efficiency rather than conscience." David Orr, in *What Is Education For?* discusses six new principles to guide the future direction of education, principles which, I would suggest, could serve as the basis for determining quality of education (emphasis added).

> *First, all education is environmental education.* By what is included or excluded we teach students that they are part of or apart from the natural world. To teach economics, for example, without reference to the laws of thermodynamics or those of ecology is to teach a fundamentally important ecological lesson: that physics and ecology have nothing to do with the economy. That happens to be dead wrong. The same is true throughout all of the curriculum.
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> A second principal comes from the Greek concept of *paideia. The goal of education is not mastery of subject matter, but of one's person.* Subject matter is simply the tool. Much as one would use a hammer and chisel to carve a block of marble, one uses ideas and knowledge to forge one's own personhood. For the most part we labor under a confusion of ends and means, thinking that the goal of education is to stuff all kinds of facts, techniques, methods, and information into the student's mind, regardless of how and with what effect it will be used. The Greeks knew better.

Third, I would like to propose that *knowledge carries with it the responsibility to see that it is well used in the world.* The results of a great deal of contemporary research bear resemblance to those foreshadowed by Mary Shelley: monsters of technology and its byproducts for which no one takes responsibility or is even expected to take responsibility. Whose responsibility is Love Canal? Chernobyl? Ozone depletion? The Valdez oil spill? Each of these tragedies was possible because of knowledge created for which no one was ultimately responsible. This may finally come to be seen for what I think it is: a problem of scale. Knowledge of how to do vast and risky things has far outrun our ability to use it responsibly. Some of it cannot be used responsibly, which is to say safely and to consistently good purpose.

Fourth, *we cannot say that we know something until we understand the effects of this knowledge on real people and their communities.* I grew up near Youngstown, Ohio, which was largely destroyed by corporate decisions to "disinvest" in the economy of the region. In this case MBAs, educated in the tools of leveraged buyouts, tax breaks, and capital mobility have done what no invading army could do: they destroyed an American city with total impunity on behalf of something called the "bottom line." But the bottom line for society includes other costs, those of unemployment, crime, higher divorce rates, alcoholism, child abuse, lost savings, and wrecked lives. In this instance what was taught in the business schools and economics departments did not include the value of good communities or the human costs of a narrow destructive economic rationality that valued efficiency and economic abstractions above people and community.

My fifth principle follows and is drawn from William Blake. It has to do with *the importance of "minute particulars" and the power of examples over words.* Students hear about global responsibility while being educated in institutions that often invest their financial weight in the most irresponsible things. The lessons being taught are those of hypocrisy and ultimately despair. Students learn, without anyone ever saying it, that they are helpless to overcome the frightening gap between ideals and reality. What is desperately needed are faculty and administrators who provide role models of integrity, care, thoughtfulness, and institutions that are capable of embodying ideals wholly and completely in all of their operations.

> Finally, I would like to propose that *the way learning occurs is as important as the content of particular courses.* Process is important for learning. Courses taught as lecture courses tend to induce passivity. Indoor classes create the illusion that learning only occurs inside four walls, isolated from what students call without apparent irony the "real world." Dissecting frogs in biology classes teaches lessons about nature that no one would verbally profess. School architecture is crystallized pedagogy that often reinforces passivity, monologue, domination, and artificiality. My point is simply that students are being taught in various and subtle ways beyond the content of courses.

During the past four years, the Rural Institute of the Mid-continent Regional Educational Laboratory, has been developing a program called **Rural Schools and Community Development.** Imbedded in this program are many of the notions included in the above principles. For instance, a central notion to involving the schools and, more specifically, the students in community development is the idea of using the community as the focus of study. The local environment (social, physical, economic) becomes a part of the school curriculum. Students become involved in investigating real community issues, using the subject matter as tools for problem solving. Teachers become co-learners with students. The line between teacher and students, between school and the real world becomes less well-defined.

Not only are these real life learning experiences more powerful, they very often result in immediate benefits to the local community. Students in a school in Alabama monitor water quality at the request of the county government. An economics class in Custer, South Dakota, assisted the Chamber of Commerce in preparing an application to FmHA for low-cost housing for seniors, which has now been built. In Rothsay, Minnesota, students now run businesses that would not otherwise be providing goods and services in their small town.

Using the community as a laboratory for learning does not mean that the education provided is a parochial education. Rather, it is the finest kind of rehearsal for participation in a democratic society. As students understand the concept of sales leakage at the community level, they are more likely to understand more abstract concepts such as the national balance-of-payments. Understanding the interrelationships of the local ecology transfers readily into understanding the issues facing the global ecology. Becoming a valued participant in the social discourse of the local community is the first step in becoming an active participant in the state and national scene. Individuals learn to appreciate that which they know and are a part of.

Wallace Stegner, noted author of the American West, in his book *Wolf Willow*, talks eloquently about the importance of understanding the place where he grew up.

> What strikes me is the fact that the information I was gaining from literature and from books on geography and history had not the slightest relevance to the geography, history, or life of the place where I lived. Living in Cypress Hills, I did not even know I lived there, and hadn't the faintest notion of who had lived there before me. But I could have drawn you a crudely approximate map of the Baltic, recited you Tom Moore songs or Joaquin Miller's poem on Columbus, or the misfortunes of the Sabine women.
>
> History was something that was applied to other places. It would not have seemed reasonable to any of the town's founders to consider any of their activities history, or to look back very far in search of what had preceded them. Time reached back only a few years, to the pre-homestead period of the big cattle ranches. Some ranches had weathered the terrible winter of 1906, and to a child these survivors seemed to have existed forever, floating in an enduring present like the town. For that matter, I never heard of the terrible winter of 1906 until many years later, though it had affected my life for me before I was born. We knew no such history, no such past, no such tradition, no such ghosts. And yet it would be a double error to assume that my childhood had no history, and that I was not influenced by it. For history is a pontoon bridge. Every man walks and works at its building end,

> and has come as far as he has over the pontoons laid by others he may never have heard of. Events have a way of making other events inevitable; the actions of men are consecutive and indivisible.

All communities, from the largest to the smallest, require quality education. The above discussion is my attempt to describe what I believe a quality education would look like. Is such an education affordable for all communities regardless of how small or how big? What of efficiency and effectiveness?

Size, Cost, and Quality

So what about the higher per pupil costs of small scale institutions? There are two important considerations in answering this question. First, if the education provided is in line with the above discussion, preparing students to make a more direct contribution to the economic viability of the local community rather than extracting the economic and human resources from that community, the costs are no longer costs in the traditional sense, but investments in the community's future. Secondly, if it is important that education move in the direction outlined by Orr, small size could very well be a strength, not a problem. Rural communities offer a safe, immediate learning laboratory right outside the school door. (Unfortunately, in many school consolidation scenarios, large educational plants are located out in the middle of nowhere, physically separating the learning experience from the ongoing life of the community.) Supporting our experience in getting schools involved in community development are such noted scholars as Goodlad (1984) and Boyer (1983) who suggest that if real reform is to take place in education, we need fewer, more integrated classes, that are offered for longer periods of time.

What about the other classic argument, that there are dollars to be saved by eliminating top administrative positions, mass purchasing, and increasing student/teacher ratios? Conventional wisdom would suggest that if a state currently has 425 school districts and that number is reduced by half, one would have only half as many superintendents to pay and, therefore, considerable cost savings would materialize even though the number of school settings did not change.

In a major review of research, Chambers (1981) describes two proposed sources of savings from consolidation: decreased administrative and support staff and greater efficiency in procuring materials. His evidence indicates, however, that large schools (as well as large districts) actually increase support and administrative staff to handle the greater bureaucratic demands accompanying their larger size. Further, in rural areas, the greater costs of distributing materials and transporting students to school tend to offset savings from consolidation. Thus, Chambers finds little evidence supporting actual economies of scale in schooling.

Guthrie in his review of research on "economic efficiency" concludes,

> Evidence in favor of cost savings associated with larger size schools and school districts is, at best, ambiguous. In the instance of rural schools, the setting where consolidation has been most dramatic, it is exceedingly unclear that efficiency favors larger organizations. Transportation appears to make the difference.

He goes on to say that

> No study of scale economies of rural schools has attempted to account for increased student transportation time as a consequence of consolidation. In many rural areas, collapse of small schools into larger units has resulted in students riding the school bus up to 60 minutes in each direction. If a price were attached to their time, cost savings in larger rural districts might decline substantially (Guthrie, 1980).

Summary and Recommendations

From having worked in education for over 35 years, administering schools as small as fifty-two students in twelve grades to monitoring foundation grants in the largest cities of the country; from studying the research on school size and quality; and from becoming a student of rural communities in the upper-Midwest, I would offer the following recommendations.

1. That the search for efficiency and effectiveness be refocused from the consolidation of schools to redesigning schools in such a way that they become central players in community development.
2. That schooling become an integrated part of community life, using the community and its environmental context as a laboratory for learning.
3. That where there are economies of scale to be realized (e.g., a critical mass of students needed for specialized advanced courses, musical or drama productions, certain team sports, etc.) that these economies can be realized by forming clusters of neighboring schools for the sharing of teachers, students, specialized instructional resources, and even administrative services, allowing schools to remain in local communities. (See Appendix A for specific examples.)
4. That the notion of the generic school district be reexamined as the structure for delivering education. Because there are different functions inherent in the process of education, organizational structures should be created that can best carry out those functions. For instance, early childhood and elementary education should best be conducted close to where children live. In some instances in the West, one- or two-room schools might still best serve this purpose. Much of secondary education should

take in the context of local communities as discussed above. Specialized courses might best be handled at the level of a cluster of schools. Some purely administrative functions could very well be regionalized.

Size, cost, and quality as they relate to public education are important issues. Population shifts, improved transportation, and the industrialization of society were driving forces in consolidating schools. There are now a different set of forces at work. As we move into a post-industrial age, an age in which there is an increasing recognition of environmental limits, a different kind of education is needed. Having experienced the disconnectedness of our specialized, impersonal society, individuals are seeking to re-form communities. In speaking about reversing these dysfunctional trends, Wendell Berry (1990) in an essay entitled "The Work of Local Culture," says

> My feeling is that if improvement is going to begin anywhere, it will have to begin out in the country and in country towns. This is not because of any intrinsic virtue that can be ascribed to rural people, but because of their circumstances. Rural people are living, and have lived for a long time, at the site of the trouble. They see all around them, every day, the marks and scars of an exploitive national economy. They have much reason, by now, to know how little real help is to be expected from somewhere else. They still have, moreover, the remnants of local memory and local community. And in rural communities there are still farms and small businesses that can be changed according to the will and the desire of individual people.

Improvement cannot take place without quality education, education that is community based. We cannot afford the costs of not providing this kind of education. Indeed, if properly done, it is not a cost but an investment in community development.

Appendix A

Clustering: Neighboring Schools Working Together

Traditionally in rural areas, when a job is too large to accomplish alone, people band together to get the job done. In the past, raising a barn or harvesting the crops could be accomplished more efficiently when nearby folks worked cooperatively. The Rural Institute has applied this notion to address the needs for rural school redesign and community development.

Working together

- Expedites the exchange of ideas.
- Facilitates the sharing of resources.
- Allows for the more efficient use of technical assistance.
- Provides the moral support and accountability necessary for change to take place.
- Establishes a climate of cooperation and mutual benefit rather than competition and control.

Clusters have been most successful when they organize around a common purpose, have a long-term time commitment from the participants (a minimum of three years), when member schools and communities are similar, and when distance between members is reasonable to allow for frequent meetings, and sharing of services and programs.

Examples

- Rutland, Ramona, and Oldham, South Dakota—three communities with a combined student enrollment of 343 students K-12—are served by one superintendent. Each of the communities continues to operate a school.

- Four school districts, Fayette, New Franklin, Pilot Grove and Slater, are members of the Mid-Missouri Restructuring Consortium which has formed a partnership with the Psychology Department, University of Missouri to provide psych interns who dispense specialized psychological services for the four districts.

- Guiltner, Harvard, Kenesaw and Trumbull, Nebraska, worked as a cluster to develop a K-12 curriculum for each of the school districts. While they worked through a common curriculum process, each of the districts ended up with their own unique curriculum.

- A cluster (rural schools were scattered across the state) of 14 schools in South Dakota linked up with the University of South Dakota to offer advanced courses in math and science. Course content was based on video tapes with backup by local teachers and university professors.

- The West River Inter-active Video Consortium in North Dakota shares specialized teachers electronically every period of the day.

- Twenty districts, three separate clusters in Northeast Kansas, are linked electronically with the Center for Rural and Small Schools, Kansas State University to provide technical assistance and staff training on instruction uses of micro-computers.

- The Greater Nelson County Consortium, North Dakota, has hired two guidance counselors, an art teacher, and a Spanish language teacher to rotate through and serve all of the member schools.

References

Barker, R., & Gump, P. (1964). Big school, small school. Stanford, CA: Stanford University Press.

Berry, W. (1990). What are people for? San Francisco: North Point Press. .

Boyer, E. (1983). High school. New York: Harper Row.

Bryk, A., Lee V., & Smith, J (19). High school organization and its effects on teachers and students: An interpretive summary of the research.

Chambers, J. (1981). An Analysis of school size under a voucher system, Educational Evaluation and Policy Analysis, 3, 29-40.

Fox, W. (1981). Reviewing economies of size in education, Journal of Education Finance, 6, 273-296.

Guthrie, J. (1980). Organizational scale and school success, In Education Finance and Organization Research Perspectives for the Future, Chapter 5. Washington D.C.: National Institute of Education.

Goodlad, J. (1984). A place called school. New York: McGraw Hill.

Kemmis, D. (1990). Community and the politics of place. Norman: University of Oklahoma Press.

Monk, D., & Haller, E. (1986). Organizational alternatives for small rural schools. Ithaca, NY: Cornell University

Orr, D. (1991). What is Education For? In Context, 27, 52-55.

Stegner, W. (1990). Wolf willow. Bergenfield, NJ: Penguin USA

Strange, M. (1991). Rural economic development and sustainable agriculture, Center for Rural Affairs, Walthill NE

Size, Cost, and Quality
of
Schools and School Districts:
A Question of Context

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Introduction

The issues of school size and school district size have been discussed and debated on a continuous basis since the beginning of public education in America and remain a central theme in many present day school reform initiatives. This paper will investigate the issues of school size and school district size from the perspectives of cost and quality of education. Through a wide-ranging review of the research literature, the following questions will be addressed: What are the best indicators of the quality of education offered by a school or district? What is the relationship between a school's size, cost, and quality? What is the relationship between a school district's size, cost, and quality?

Background

As early as the colonial period in the United States, one can find evidence of size issues related to organizing public education. For example, the colonial legislature of Massachusetts in 1647 passed a law requiring that, "every town having fifty households at once appoint a teacher of reading and writing, and provide for his wages in such a manner as the town might determine; and every town having one hundred households must provide a grammar school to fit youths for the university...." (Johns, Morphet, Alexander, 1983).

Today, the dialogue concerning school and school district size continues, not only as a part of designing school reform, but also in an attempt to measure the impact of reform efforts on schools. A recent example is found in a survey of elementary school teachers in Chicago—site of one of the most sweeping school reform initiatives in the history of public education—which revealed that "reports from small schools are consistently better than reports from medium and large schools" relative to a list of quality indicators tied to the school reform legislation (Charting Reform, 1992). School size and school district size remain a point of study and controversy in the continuing exchange about good schools and the delivery of educational services through school districts.

There are a vast number of reports, articles, and studies related to the topic of school size and school effectiveness. These studies have been undertaken for reasons that range from justifying school or school district consolidation to providing support for maintaining schools of varying sizes. Other reasons for reports of this type concern the equity question as related to expenditures per student or quality of programs in schools within a local, state, or regional system. Additional areas of the literature germane to the topics of this report fall under the category of school finance and equality of educational opportunity. Closely tied to the theoretical base of this part of the literature are court cases which have established standards for determining equity among schools or school districts. These legal standards often offer points of reference when investigating questions of cost and quality.

The material reviewed below is grouped into three broad categories. The first part looks at research reports related to the topic of size. These reports are analyzed for their design, the procedures used in the study, and the instruments employed. The population investigated and sampling techniques are also explained when appropriate. The variables of the reports are defined and the studies critiqued in relation to their implications for this investigation.

The second part of the literature review focuses on state level reports that address the areas of study concerned with school or district consolidation efforts. Two representative examples of these reports are included to illustrate how cases for and against policies pertaining to school or district size are framed. The third section of the review of research comments on studies, reports, articles, and books that are oriented to the finance and equity issue, outlining the questions under study within the context of the school finance equity debate.

Review of Research

School Size

One of the largest related studies undertaken in the area of equality of educational opportunity among high schools was "High Schools in the South," conducted under the auspices of the George Peabody College in Nashville, Tennessee, in 1965 (Vance, 1966). The report was commissioned to determine the status of high schools in eleven southern states. School size, finances, personnel, professional qualifications, educational programs, and teacher load were investigated. Information gathering techniques included a review of official records maintained by the various state departments of education. The data was analyzed to discover relationships among the variables listed above. Findings of the study indicated that small schools in the South were the biggest obstacle to a quality education. The report associated fewer course offerings, less qualified staff, and inefficient organizational patterns as being associated with schools of under 500 students.

This investigation was one of the prime movers in the educational reform effort that began in the southeastern United States during the mid-1960s. School organizational reform directed toward larger comprehensive high schools was initiated in the South.

By way of contrast, Kleinfeld, McDiarmid, Williamson, and Hagstrom (1985) conducted a study of rural high schools in Alaska. The investigation looked at educational program offerings, service delivery problems, and strategies for school improvement. A random sample of 32 schools, or 20 percent of the total, were studied using surveys, telephone interviews, site visits, and student achievement data. Two notable findings of this study were that size not determine the quality of the educational experience nor the extent of student achievement on standardized tests.

The study, "Alaska's Small Rural Schools: Are They Working?" offered a number of suggestions for developing successful school programs in rural Alaska. Among the areas mentioned were course offerings, vocational education, college preparation, and guidance programs. The study placed too much emphasis on personal interpretation and testimonials from those within the schools under study. It lacked appropriate objective standards of control and, accordingly, findings are suspect.

The school size variable has been studied from a variety of perspectives over the years. For example, in 1978, Cusick, Martin, and Palonsky explored the effects of school organization on student behavior in their report "Organizational Structure and Student Behavior in Secondary School." They reviewed the findings of four studies which focused on student behavior in high school. The hypothesis of the study was that school size affected student behavior. Investigation techniques of the reviewed studies included observations of students and teachers and interviews with staff and students.

Cusick, et al. found a relationship between school size and levels of student involvement. Larger schools, they reported, tended to direct students towards periods of time that were totally staff directed and required little of students. Small alternative schools, on the other hand, created more opportunities for student involvement in which students had a "high level of existence." The researcher also concluded that small schools valued students more and that this was apparent to students.

In his report, "What Research Says About Schools and School Districts," Clifton Fonstad (1973) compiled an enormous amount of information on the school size and quality debate. Numerous summary tables are included which provide data about student achievement, per pupil costs, course offerings, qualifications of staff, and related matter associated with school size comparisons. The author used the vast information base to identify variables that are common to schools that offer a quality program and that use resources efficiently. The school size issue was measured against student achievement, costs per student, staff certification, course offerings, school organization, and extracurricular offerings. The report also provided some objective measures for determining quality schools and effective use of resources.

Illinois State University's Center for the Study of Educational Finance undertook a study which set out to determine the relative equity among vocational education programs in Illinois high schools (Lynn, Shade, and Hickrod, 1983). The study, "A Pilot Study to Explore the Equity Issues and Problems in Vocational Education in Illinois," zeroed in on wealth and size of school districts as factors most likely to have an impact on the equity question. The investigation used a stratified sample of schools and school districts to achieve a representative mix of size and wealth. Two major adjustments to the research plan were made once the study was under way. First, the diversity of the program offerings led them to drop their plan to statistically measure the numerous variables. Second, the vast flexibility in local decision making made it impossible to determine if the programs resulted from size or wealth problems.

This was because school districts investigated in the study were allowed to determine how they deployed the vocational education financial resources. As a result, the study was inconclusive.

"A Study Reporting Secondary Course Offerings in Small and Large High Schools," (Barker, 1985) used a random sample of schools with enrollments under 400 and over 1,000. Four hundred and seventy-five small schools and nine hundred large schools were sent surveys that listed possible course offerings. Frequency distributions were assembled to compare the results of the survey. Findings indicated that small schools were at a decidedly greater disadvantage in the area of course offerings than larger schools. Art, business education, foreign language, industrial arts, and higher mathematics were examples of courses less likely to be found in the small schools. However, it was reported that vocational agriculture and animal husbandry courses had a higher frequency in the small schools.

Phil Schoggen (1984) studied "Student Voluntary Participation and High School Size"; this was a unique study with a not very surprising conclusion: students in small schools are more active in extracurricular programs. The research was conducted by surveying yearbooks from twenty-four schools with a combined enrollment of 9,000 students. The large schools offered more opportunities for involvement, but had greater numbers of non-participating students. Small schools, conversely, had fewer options for students, but greater student participation.

In 1976 a study was conducted in Montana to determine the relationship between school size and student achievement. "The Basic Quality of Secondary Education in Rural Montana" (Kimble), was conducted by administering the Stanford Achievement Test to five percent of the high school students in the state. The sample included 1,311 sophomores and 875 seniors. Regression analysis was used to determine the effect of school size on student achievement and the interplay of other variables such as socioeconomic status. Findings of the study presented one interesting result. While differences existed among student mean test scores for students from different size schools at the sophomore level, this difference was not apparent at the senior level. Socioeconomic factors were, however, significantly related to student achievement.

Shamus Mehaffie (1983) repeated a survey he had undertaken in 1973. The survey targeted 402 teachers and administrators in 44 small secondary schools in West Texas. Personnel in the schools with enrollments of 200 or fewer were queried about school size, location, best and worst features of the school, and the future of their schools. Findings in both studies revealed positive regard for the schools in terms of their educational programs and social environments. However, the limited availability of media resources was viewed as a negative aspect of the small schools. Compared to the 1973 study, the 1983 survey revealed more positive expectations about offering a quality educational program for students now and in the future. Finally, smallness was seen as a unique characteristic requiring different approaches from those used in the urban schools.

School and School District Consolidation

The question of school and school district consolidation has been debated intensively for the past fifty years. Prior to World War II, there were 119,000 school districts in the country; today there are 15,000 (Rodgers, 1986). States such as Arkansas, Iowa, Illinois, Nebraska, North Carolina, Ohio, and South Dakota are currently involved in efforts to consolidate schools or school districts. Reasons given for these state level initiatives usually fall under the headings of economic efficiency, broader course offerings, quality of teaching staff, and better student performance.

Predictably, these state efforts have not proceeded without controversy. The pattern of development for these consolidation efforts often starts with a study commissioned by the legislature, governor, or state education department. The gamut of variables associated with schools and school districts are investigated and the rational findings usually discovered are that small schools or school districts are economically inefficient and educationally inadequate. Armed with a mountain of statistics, education reformers charge forward with their findings only to find enormous resistance from the schools and districts effected by the consolidation effort.

Studies designed to counter the state reports are commissioned by school boards and administrator associations. These local studies find justification for maintaining the smaller units. Typical of the state level reports is "School District Reorganization in Illinois," May 1985. This study followed a pattern similar to that found in reports from other states. The report will be reviewed in conjunction with "Heavy Meddle, A Critique of the North Carolina Department of Public Instruction's Plan to Mandate School District Mergers Throughout the State" (Sher, 1986), which is an example of a counterreport from a school boards association.

The Illinois report studied the issues related to school consolidation through the investigation of variables such as school size, course offerings, ACT scores, proficiency test scores, quality of instruction, and per pupil expenditures. Using measures to determine distribution frequencies, measures of central tendency, analysis of variance and regression, the investigation concluded that school size and student achievement were related. The study recommended that reorganization of schools and districts should take place to assure that high schools of adequate size are available for all students "to provide a curriculum that will be responsive to student needs; to better coordinate services to students through a K-12 organizational pattern; and to assure adequate and equitable distribution of resources."

The North Carolina School Boards Association report systematically refuted its state education agency's report by dealing in turn with the issues of economics, education, social considerations, and political realities. The report was successful in presenting an argument that countered the state-mandated consolidation effort of small schools and districts. The North Carolina report suggests that sweeping consolidation mandates cannot deal with the complex issues associated with such change and that these steps should be taken on a case-by-case basis. It also points out that good schools and good school districts "come in all shapes and sizes" so broad policy objectives are inappropriate. Finally, the report falls back on the political axiom that such decisions are best made at the local level.

The purpose for presenting the previous two contrasting reports is to illustrate the diversity of opinion extant in the school and district size debate. It is also important to recognize that all reports and studies of this type, whether state generated or originating from other organizations, claim to consider the equity question among educational programs.

In 1959, J. B. Conant released his landmark study, "The American High School Today: A First Report To Interested Citizens," in which a vast number of equity issues were addressed. Among the major findings of the study was the verification that large numbers of high school students were being educated in schools that offered inadequate course offerings. He reported that thirty-two percent of graduating seniors were from classes of less than one hundred.

Economy of scale offered by the comprehensive high school was proposed as one of the solutions to the problem of disparity in educational opportunity among high school students.

In contrast to the opinions that larger is better, other studies have emerged that have extolled the benefits of smaller high schools and exposed the problems of the large urban schools. Barker et al. (1964) studied the affective aspects of the school size question. Their book, *Big School Small School: Studies of the Effects of High School Size Upon the Behavior and Experiences of Students*, determined that schools should be small enough so that each student is a valued member of the enterprise. The authors suggest that in large schools some students become redundant and are treated as such. The qualitative aspects of a small school, such as individual attention and a sense of community, enhance the learning environment for the student. Marginal students are reported to do better in the small schools and drop-out rates, for example, are lower.

Some of the current thinkers in education have also discovered the value of smaller high schools. John I. Goodlad (1984) in his book *A Place Called School* claimed that high schools with 500 to 600 students are the optimum size for effectiveness. His extensive study concludes that this size high school achieved the best results defined by various qualitative and quantitative indicators.

Similarly, Ernest Boyer (1983) in his study "High School: A Report on Secondary Education in America" recognizes that, while large schools are a fact of life in American secondary education, their ability to provide a quality education is diminishing. He advocates the concept of "schools within schools" as a means of capturing the benefits of the small school setting. Small schools, reports Boyer, do a better job of involving students, offer greater emotional support, and are more cohesive.

Roweton and Bare (1990) in their study "Profiling High Schools with High/Low 'Holding Power': A Comparative Study" determined that small schools, particularly in rural communities and small towns, had the best "Holding Power." These small schools did a better job on average of keeping at-risk students in school. This survey of 77 high schools used data from a survey of 7,100 students, hundreds of teachers, and dozens of principals.

In *Politics, Markets and American Schools*, John E. Chubb and Terry Moe (1990) touch on the school size issue as they study school effectiveness. Their research, based to a large extent on data from the Administrator and Teacher survey and the High School and Beyond survey, advances some suggestions that the original rationale from years past, which encouraged the formation of large schools to gain economic efficiency, may have been in error. They believe the data suggest small schools may offer more for the individual student. They found no clear evidence to support the concept that bigger schools are better. Similarly, the authors point out that the inevitable diversity of the clientele, coupled with the necessarily broad school district mission found in large urban districts; contributes to the paralysis and ineffective bureaucracies so characteristic of these systems.

Similarly, the article "Financial Effects of Consolidation" (Streifel, Foldesy, Holman, 1991) points out that recent studies have shown that school district consolidations have few fiscal advantages and may, in fact, sacrifice student achievement and community support.
They note that the fiscal categories of instruction, transportation, operations and

maintenance, total costs, total revenue, and capital projects showed no significant differences in the rates of change when compared to state averages.

Finance and Equity Issue

Constitutional Reform of School Finance (Alexander, Jordan, Forbis, 1973) is a masterful work which provided an extensive treatment of the statutory and judicial influences which have an impact on school finance today. A more succinct work, published by the Education Commission of the States, is *School Finance Reform in the States*, (Odden and Augenblick, 1981). Odden (1990) in his work *The Changing Contours of School Finance*" provides a panorama of issues related to the equitable funding of schools. The works cited here offer information on legal and statistical standards that address the educational equity questions. These studies, along with a host of textbooks dedicated to school law and school finance, serve to establish well-defined criteria for determining equity in the funding of schools. Such criteria are important aspects of any discussion about school or school district size.

Ramirez (1990) investigated high schools in Nevada to determine the relationship between school size and equality of educational opportunity.. Impetus for the research came from a desire to test the state funding formula for public schools, which has as its goal the provision of a relatively equal educational opportunity for all students in the state.

In the study, forty-nine comprehensive high schools were organized into four groups based on school size for comparison purposes. Group 1 had 12 schools that ranged in size from 22 to 99 pupils; Group 2 had 16 schools that ranged from sizes of 109 to 440; Group

3 was comprised of eight schools ranging in size from 530 to 1,468; Group 4 was made up of the 13 largest schools and ranged in size from 1,609 to 2,493 students.

Analysis of variance and correlation analysis were the primary statistical measures used to compare the data among the school size groups. Measures of quality and student achievement were compiled to assess if differences existed among high schools of varying sizes. Indicators of quality, such as student-teacher ratio, media resources, certification of staff, and course offerings, were reviewed. Student achievement data consisted of college entrance examination scores, state basic skills tests required for graduation from high school, and student grade point averages for high school and college.

Findings of the study revealed some differences in the qualities associated with school size, but, overall, these quality indicators tended to balance out among the schools. Each school size group had its own set of qualitative advantages. No material differences were identified in the area of student achievement. Data on college freshmen from the high schools in the study was inconclusive. Recommendations related to funding for public school education suggested specific programs to target areas of need. It appeared from the study that the basic state funding mechanism was meeting its goal.

The literature review presents material from an array of sources that are of significance to this paper. Research articles were selected to demonstrate the scope of studies undertaken in the area of school and school district size, quality, and equity. The design of these investigations ranged from explorations with rigid statistical constructs to sociological investigations that try to capture the tone and quality of the issue. Most of the available research on this issue uses either correlational studies or opinion survey data as the research method, and this should serve as a word of caution to anyone making decisions based on this type of research information. Major works that have provided bench marks in the development of educational thought were also considered in this paper. Next, an attempt is made to draw from this research material to frame some overarching parameters for consideration in this study.

Discussion: Problems and Possibilities

In order to cope with the avalanche of data and information derived from the numerous studies and reports of quality, size and economy, it is important to establish some working definitions around key terms. The term quality needs to be defined as well as what constitutes a small school.

The American Heritage Dictionary (1985) defines quality as "the essential character of something . . . superiority of kind; degree or grade of excellence." Applying this definition to our discussion about schools and school districts quickly points up the problem of using a term with subjective interpretability. To help circumscribe the definition a little more, researchers and policymakers are forced to identify available objective standards and measures in order to determine the relative "degree or grade of excellence" in the institutions under question.

Standards and measures, as is seen above in the review of research, exist in a variety of areas. However, they basically fall into one of two broad categories. The first category covers those things generally thought of as being inputs to the educational process, e.g., teachers, books, curriculum, and so forth. The second category can be labeled "outcomes," which are typically seen as test scores, graduation rates, data from opinion surveys, and other measures of results.

Generally, the objective measures are related to the organizational mission and services, e.g., graduating students, college admissions, test scores or unit cost per mile for each student transported, number of students per class, average per pupil expenditure. They are used as objective points of comparison as investigators try to make comparisons and analyze data. And, they inform policymakers as they deliberate over resource issues.

Small and large are also relative terms when applied to schools and school districts. For example, the Chicago Public Schools is one of 950 school districts in Illinois. Chicago has 410,00 students in 540 attendance centers. The next largest school district in the state, Elgin, has 29,000 students and fifty attendance centers (Illinois State Board of Education, 1992). Half the districts in the state have fewer than 800 students and the average number of schools per district is about four. Compared to Chicago, all other school districts in the state are small.

School size is also an elusive measure and another example from Chicago helps to illustrate this. The average size elementary school in the city's public school system has 675 students. By contrast, the average elementary school in the Chicago Archdiocese and average public elementary school in the rest of the state have an enrollment of about 350 (Don't close schools, 1992). Is an elementary school of 500 students small?

The national picture offers little help with regard to identifying standard measures. Almost 26 percent of the school districts in the United States have fewer than 300 students. However, about 28 percent of the student population can be found in just over 1 percent of the districts (National Center for Educational Statistics, 1990). Average school size among the states also varies considerably. For example, the range of average elementary school size by state has Alaska at 299 and Florida at over twice this size with 698 students per school.

What this information underscores is that there are no easy answers to the questions about size, quality and efficiency. The array of variables associated with those inputs and outcomes, which describe each school or school district are extremely complex and not subject to easy interpretation. Additionally, the unique setting in which the school or school district exist further complicates broad-scale analysis. This type of research environment is subject to high levels of abuse, particularly when it is surrounded by a highly charged political environment.

Conclusions and Recommendations

When is a school too big? When is a school district too small? Is the size of the institution a critical variable important enough to be considered in isolation as a factor contributing to the success of the institution? No one response can satisfy each of these questions. It appears that much of the confusion around these issues is related to asking the wrong questions and not nesting questions about size in their proper context.

As we have seen from the research, a small rural school with a clear mission, community support, and adequate resources may be a very successful institution. Similarly, a small alternative school in an urban area with a discrete mission and proper inputs can be very successful within its niche.

In contrast, many of the best public schools are large institutions found in urban and suburban areas. These flagship schools are successful, not because of size, but because of the outcomes they achieve. They begin with certain inputs, configure these resources to support their mission, and work to continually improve. School size is one of many factors to consider when organizing programs, services, and personnel.

A school is not a building, but rather a learning community. This is an important concept to keep in mind because it has a great influence on what one looks for in large buildings with many students. Schools within schools and other cohort organizations within buildings tell more of a story about a school's size than information about the number of students in a building. The management of large numbers of students is always a challenge, but the basic unit of contact is still the classroom. The organization of classrooms within the building is a key element to understand in any investigation of school size.

School district size is an even more elusive variable to judge. This is partly due to the more expansive and less well-defined mission of a school district. Twenty small districts clustered in a close geographic area may be inefficient, but the historical and political context of their existence may cast a different light on the size question. Additionally, the question of the relationship between the size of a school district and student outcomes becomes very clouded in the research. This is in part because the institutional setting needs to be considered along with many other factors when making comparisons. For example, the role of cooperative agreements and intermediate service agencies in a particular state will effect the mix of resources and services available to students in small districts.

What is not evident in the review of research is the impact technology will have on the questions of size, quality, and efficiency. We can already speculate about how traditional problems of scheduling, geography, and space needs might be affected. The potential impact could render many of the issues related to size insignificant.

Discrete rational models for configuring the delivery of educational services tend to unravel quickly once they reach the real world. Researchers and policymakers must consider the political realities raised by questions about school or district size. While an optimum size may exist for a particular institution, the size issue is contextual in nature and not permanent. The optimum size for educational institutions is an elastic concept related to the mix of organizational mission, institutional setting, and available resources. At the extremes of the elasticity of effective size are the inefficiencies associated with insufficient economy of scale and bureaucratic gridlock.

Considering the size question in isolation is futile. The focus must be on determining the critical path to the best fit between organizational mission and size. Questions of balance are more important than size. Issues about services, programs, and resources, for the target population are significant; institutional size is secondary. Trade-offs and compromises around size issues are inevitable and part of the process of configuring resources to meet desired outcomes. For these reasons it is important for researchers and policy makers to consult with those affected by decisions about size in order to gain the historical, cultural, and political perspective on the size question for a particular community.

Finally, somewhere in the discussion, the question must be raised about what is best for the child, student, or client affected by decisions of size. Too often, discussions about school or district size stem from established positions and grow to elaborate rationales to justify these positions. This approach can lead to losing sight of the student's interest.

References

Alexander, K., Jordon, S., & Forbis, K. (Eds.). (1973). Constitutional reform of school finance. Lexington, MA: Lexington Books.

American heritage dictionary (second college ed.). Boston, Houghton Mifflin

Barker, B. (1985, May). A study reporting secondary course offerings in small and large high schools. Paper presented at the Rhode Island Department of Education Conference, Providence, RI.

Barker, R. B., Gump, P. V., Campbell, W. J. , Barker, L. S., Willems, E., Frisen, W. V., LeCompte, W., & Mikesell, E. H. (1964). Big school, small school. Studies of the effects of high school size upon the behavior and experiences of students (Cooperative Research Project No. 594). Lawrence, KS: University of Kansas. Midwest Psychological Field Station.

Boyer, E. L. (1983). High school: A report on secondary education in America. New York: Harper & Row.

Chubb, John E., & Moe, Terry M. (1990). Politics, markets and America's schools. Washington, DC: The Brookings Institution.

Charting reform: The teachers turn. (1992). (Report No. 1 on a survey of CPS elementary school teachers). Chicago, Il. The Consortium on Chicago School Research.

Conant, J. B. (1959). The American high school today: A first report to interested citizens (1st ed.). New York: McGraw Hill.

Cusick, P., Martin, W., & Palonsky, S. (1978). Organizational structure and student behavior in secondary school. Studies in Educational Administration and Organization, 7-8, 106-118.

Don't close schools. (1992). Designs for change. Chicago, Il.

Fonstad, C. (1973). What research says about schools and school districts . . . factors related to effectiveness: A report (Bulletin No. 4030). Madison, WI: Wisconsin State Department of Public Instruction.

Goodlad, J. I. (1984). A place called school: Prospects for the future. New York: McGraw-Hill Book Company.

Illinois State Board of Education. (1992). Unpublished report. Springfield, Il.

Johns, R. L., Morphet, E. L., & Alexander, K. (1983). The economics & financing of education (4th ed.). Englewood Cliffs, NJ: Prentice Hall.

Kleinfeld, J., McDiarmid, Williamson, G., & Hagstrom, D. (1985). Alaska's small rural high schools: Are they working? (Abridged Edition). (Report No. ISER-R-57). Institute of Social and Economic Research and Center for Cross-Cultural Studies. Anchorage, AK: University of Alaska.

Kimble, J. W. (1976, April). Basic quality of secondary education in rural Montana (Bulletin 685). Montana Agricultural Experiment Station. Bozeman, MT: Montana State University.

Lynn, M. A., Shade, R., and Hickrod, G. A. (1983, March). A pilot study to explore the equity issues and problems in vocational education in Illinois. Center for the Study of Educational Finance. Normal, IL: Illinois State University.

Mehaffie, S. (1983). Quality of education and effects of size in small West-Texas high schools: 1973 vs. 1983 surveys. Lubbock, TX: Texas Tech University.

Mehaffie, S. (1973). A survey of current and future educational issues of small West-Texas secondary schools. (ICASALS Publication No. 73-6). International Center for Arid and Semi-Arid Land Studies. Lubbock, TX: Texas Tech University.

National Center for Educational Statistics. Digest of education statistics, 1990. Washington, D.C.

Odden, A., & Augenblick, J. (1981). School finance reform in the states. Denver, CO: Education Finance Center, Education Program Division, Education Commission of the States.

Odden, A. (1990). The changing contours of school finance (Policy Brief Number 15). San Francisco, CA: The Far West Laboratory for Educational Research and Development.

Ramirez, A. (1990, Winter). High school size and equality of educational opportunity. The Journal of Rural and Small Schools. The national rural development institute. Bellingham, WA.

Rodgers, R. (1986, Spring). Consolidations: On the agenda again. The Small School District Administrator. American Association of School Administrators, Arlington, VA.

Rowerton, W. E., Bare, C. (1990). Profiling high schools with high and low "holding power": A comparative study. Paper presented at the annual convention of the American Psychological Association—98th, Boston, MA.

Schoggen, P. (1984, August). Student voluntary participation and high school size. Paper presented at the American Psychological Association Convention, Toronto, Canada.

School district organization in Illinois. (1985, May). Springfield, IL: Illinois State Board of Education.

Sher, J. P. (1986). Heavy meddle: A critique of the North Carolina department of public instruction's plan to mandate school district mergers throughout the state. North Carolina School Boards Association.

Striefel, J. S., Foldesy, G., Holman, D. M. (1991, Winter). Financial effects of consolidation. Journal of Research in Rural Education, 7(2).

Vance, R. B. (1966). High schools in the South: A fact book. Nashville, TN: George Peabody College for Teachers.

Small Is Beautiful

Bethany Rogers
Coalition of Essential Schools

By Bethany Rogers[1]

Small is beautiful. It so happens that small also is very effective. While we at the Coalition of Essential Schools are convinced of the truth of this, we realize that the burden is on us—in an America where "bigger is better" has been a favored maxim—to demonstrate why. From those who work in the schools, we hear perhaps some of the most compelling evidence of the advantages that accrue to both students and teachers in small school communities compared with those afforded by the traditional comprehensive high schools. Having listened over time to school people, we at the Coalition are convinced that the advantages of small schools go directly to the heart of good teaching and learning. We hope to establish the value of small school size by presenting some of these advantages—with the help of voices from the field—to you today.

In the vanguard of New York City school reform, Superintendent Joseph Fernandez and Deborah Meier, the principal of the stunningly successful Central Park East Secondary School, have devised a bellwether plan to improve the city's public schools by dividing them into smaller, distinctive units (300 to 1000 students each). The plan will

> create thirty small high schools over three years that would focus on themes. . . . The aim is to start to break down the impersonal, amorphous quality of instruction offered in the city's 124 behemoth high schools.[2]

No doubt, there is a "small" revolution happening (pun intended) in the nation's efforts to reform our public schools, which advocates breaking our comprehensive high schools down into smaller units. The big, sprawling high school, with its showy cornucopia of electives, has defined the pinnacle of secondary education in many places across our country—from Edina, Minnesota to the Bronx. So why is this citadel now being attacked? Why rethink and change it? The answer lies in our conviction that school size has an impact on the quality of education: smaller schools lead to higher quality education.

Research results indicate a strong correlation between small schools and higher student achievement.[3] To this evidence, we would add the personal and the anecdotal, so that our response here weaves together the testimony of practitioners and researchers—most notably, those affiliated with the Coalition of Essential Schools. These colleagues know schools: They have succeeded in creating school environments where kids demonstrably do what they are "not supposed to do"—i.e., they attend school, they publicly display their knowledge and skills, they graduate, and they proceed in overwhelming numbers to colleges and universities; or they have worked at the forefront of research efforts to push forward in theory and practice what we know about how kids learn best. These voices, in some rare and refreshing instances, also belong to kids who know what it means to be engaged in their education and who are thoughtful and articulate enough to share their observations. What we find in talking with such folks is that they, in large measure, agree: The quality of a school—the degree to which it can be called a "good" school—depends somewhat on that school being of a wieldy and workable size.

Most of the images of school and schooling put forth by the popular culture show little change from the 1950s, when a much smaller, homogeneous population attended high school. The fiction of these images is sadly accurate on one count: In spite of the significantly larger, increasingly heterogeneous throng of adolescents enrolled in high school today, little has changed in the practice of our schools and their approach to students and learning.

Because of this disjuncture—the world has changed dramatically and schools have not—the education provided by these anachronistic institutions has failed to prepare students to meet the shifting demands of this new world. What we face now is a crucial need to revisit the very purpose and processes of schools. What does it mean to be educated in today's society of global competition? What does it mean to be literate in a world which communicates and conveys information through varied forms of expression far beyond simple text? What does it mean to provide an equal education to those kids who grow up in society's most dire and egregious conditions?

In answering these fundamental questions about education, we propose three essential conditions which, when present, enable schools to provide serious, high-quality education for all of their students. Though these conditions will not appear in the same form from school to school, they are held in common among those schools that we consider "good." Schools that do well by all of their kids are places supportive of, and suffused with, these three qualities. What is of particular interest for our purposes here is how these conditions argue—explicitly or implicitly—for the smaller school.

Kids Must Be Known.

Kids must be known and known well by the educators in the school in order to get a crackling good education—everything else flows from this, the metaphorical heart of good schooling. The reasoning is straightforward. If we don't know our students well enough to understand how their minds work, we can't teach them well. How will we know, if we do not know Susie and her intellectual predilections, whether the mistake she makes on a math test was a careless arithmetic error or a lack of comprehension of the basic mathematical concept or even the result of problems at home? Since kids learn differently, at different rates and through different means, schools must avoid the sort of "batch processing" of kids that typically goes on at big high schools where size impedes personalization, and instead look to create conditions that enable teachers to personalize and tailor students' education.[4] Optimally, such conditions would allow teachers to know the kids they teach (over time if possible), to talk with colleagues about kids they teach in common, and to provide a stable and caring environment. These are conditions undeniably easier to achieve in a small school than in a large one.

At a small school, it is quite possible for kids to have the same teachers over a number of years. This not only maximizes the personal nature of the relationships between student and teacher, but allows the relationship to develop over time and over the progression of the student's achievement. Teachers gain familiarity with students' work and with their lives outside of school, broadening their perspective on the students' potential and their gains beyond the short window offered by one single semester. School becomes accordingly less institutional, warmer, and more personal for kids through friendly and respectful contact with adults.

Engaging Kids

Deborah Meier is a strong believer that size and scale are critical to drawing all kids into active engagement. Huge, anonymous high schools "depersonalize" the work of learning, where "all but a few stars become lookers-on, admirers, or wallflowers, not active participants."[5] We know enough about teaching and learning to recognize the value of engaging each child in active learning; and engaging a child in learning means having an informed hunch of what might interest that particular student. It all comes back to knowing again, this to be gained in a rich way over time. No longer is it enough to teach to a small slice of kids—*all* students must be given the opportunity to participate, and further, to come to know and respect their obligations and responsibilities as citizens and members of a community—schoolwide and beyond. Small schools can offer that opportunity in ways no large school ever could.

Caring Environment: Laying a Foundation for Learning

Oak Hill High School,[6] situated in a picturesque small town in New York, has just over 300 students in grades 9-12. The school has been characterized as "safe and trusting," a "caring" kind of place. In the case of Oak Hill, kids are known and size has something to do with it. The students themselves offer testimony:

> Our teachers are our friends. We can talk to them. We know them really well. Besides teaching, they coach us in sports. We go on trips together—like to France if you make it to French IV.
>
> A lot of our teachers are our friends. Some of them. . .develop real relationships with us. We can go to them when we need help.
>
> There aren't cliques here. We have all grown up together since kindergarten, so we know each other pretty well.
>
> We are like a family here.[7]

Though the words of these students are culled from long interviews which concerned many different aspects of what it is like for them to attend Oak Hill High School, the degree to which their stories reflect the recurrent theme of *being known* is significant. They recognize what it is to be known, the distinguishing quality of the relationships with teachers and with peers, and it shapes their experience.

At Simon Gratz High School, located in a low-income, minority neighborhood in North Philadelphia, students of the Crossroads program and their parents talked to reporters for a recent NBC special report on education and evidenced the same consciousness of how being known is being cared about, with all of the immediacy of contact and accountability that such entails. The process of knowing kids is helped here by the fact that the program consists of only 250 kids in grades ten through twelve, this number matched to a team of nine teachers. Parents have noted the difference, likening Gratz to "a family atmosphere. . . [where] teachers really show that they care."[8] Though Gratz parents historically have been uninvolved in their children's education, that is changing. Parents are seeing the teachers' attitude ("What you have to do is personalize your relationship with the kids. . . and you have to develop some kind of relationship.") and recognizing how the relationships allow the teachers to "expect the most from their students."[9] In the Crossroads program at Simon Gratz High School, the cultivation of relationships between teachers and students has made it possible for teachers to respect their students by holding them to high expectations—after all, they *know* what their students are capable of.

Given the opportunity to start a school from scratch, Bob Cresswell made sure that it was of a small and workable size. Cresswell, principal of a new high school in an ex-urb of Atlanta, Georgia, says that without a doubt, a small group allows for a terribly important intimacy. This "climate of caring," as he characterizes it, is invaluable to the work of teaching.

Caring is fine, but what about *learning*? Or, as the research going on at Oak Hill probes, is this "caring environment" where kids are known, crucial as it may be, enough? Gene Maeroff, senior fellow at the Carnegie Foundation for the Advancement of Teaching, argues that the advantage of "being known," facilitated by small schools, is precisely the point: "Once this happens, all things are possible. Without it, many students will never feel a stake in their education."[10] When schools are viewed by students as hostile environments or, more benignly, indifferent or impersonal, why should we expect them to feel invested in such a place? One might take as an example a translation of Mazlow's hierarchy—if simple, interpersonal functioning is at a premium, the attendant anxieties drain students' energies from their involvement in learning. Small size allows the sorts of relationships which engender respect and high expectations—going both ways—to develop comfortably. And though intangible, those qualities are essential for serious learning to occur.

If we believe, then, that the learning *environment* affects learning, creating the conditions of "caring" should be paramount. And, in fact, school environments where students are secure and comfortable in their relationships with teachers and peers are often described by students as a "family" atmosphere. A veteran headmaster (principal) of a Boston public school, Sidney Smith extends the comparison to account for size: "No one would like to have a family of two parents and 47 children—you can't manage it." Because we often ask that schools do well what families used to do, and also because, as Smith says, "space breaks things down" and diffuses intimacy, we think, quite obviously, that bigness mitigates.

Psychology of Adolescence

When kids belong, they are engaged, they are "available" to learn and be taught. However, behind the pedagogical justification which argues for small schools where kids can easily be known, there is a psychological advantage as well. Adolescence is a time of craving acceptance, ways to fit in, a sense of *belonging*. In a large school where anonymity is the rule, kids go to what we might consider foolish lengths in order to gain attention and acceptance. The least damaging possibility is that kids might learn less, but the need to belong can be distorted into more harmful forms, as Judy Codding well knows.

Codding is the principal of what she terms an unfortunately large—2,200-2,400 students—urban high school in Pasadena, California. In the four years she has been there, she has devoted her energy to countering her students' alienation and apathy: They saw no reason to be in school because the school didn't know them and didn't give them any sense of caring. In her opinion, "bigness yields this," and she redefined the mammoth school by breaking it into manageable units. As a tangible result, she is keeping more kids in school. That youngsters "succeed better with a sense of intimacy" is for Codding "true, not just hyperbole." She boldly created a climate of caring through smaller units because, as she tells it, "I don't see any other choice."

From her experience, Codding speaks compellingly of how important it is in particular for her charges—urban, minority youths growing up in an environment of poverty and violence—to feel and be told that they are important and capable. For many of them, she explains, there is no "family" in the way we talk about it in mainstream American culture. A lot of these kids lead profoundly disconnected personal lives, devoid of the kinds of mutual commitments associated with familial relations.

Kids who are so often forgotten, or at the least marginalized and unacknowledged by society, are directed by little more than rage and frustration which is, Codding believes, an inevitable by-product of the anonymity which haunts all aspects of their young lives. What happens to the natural desire to fit in when it is exposed to the pressure cooker circumstances which characterize these children's experiences? Codding tells us it is no mistake that these adolescents are members of gangs—small, supportive "families" in their own right. In spite of the well-known consequences—both public and painfully personal—for many members, Codding avers, "the very nature of the lack of connection drives this impetus."

The lack of connection that leads some disenfranchised kids to join gangs.is frighteningly pervasive, invading even those communities we think of as "safe." Sid Smith believes that *all* kids need a sense of community; that need doesn't stop at the city line. Kids from well-off homes and intact families are increasingly subject to the despair and anonymity associated with urban students. The changes taking place in suburban families—absent parents, working mothers, economic hardship—coupled with our growing recognition of what has always existed but has never been acknowledged in such families—the problems of abuse, neglect, and abandonment—have taken a toll. Relatively high incidences of suicide at exclusive boarding schools and an alarming upward trend in eating disorders which affect girls from middle-and upper-class backgrounds are evidence, in some fashion, of *kids out of relation*.

The message is clear: Many of today's youth from across the spectrum are disaffected and disconnected. We believe that small schools are an effective part of the solution. The record of Essential schools that are making significant progress shows that a sharp reduction in the number of kids for whom each adult is responsible has profound effects on those youngsters—to their great benefit. Small schools result in a community where students more readily feel they belong and where they are provided the acknowledgment and affirmation they need. As part of a school community, students are far less likely to commit acts of vandalism or assault. Those who attend small schools are truant less often and less apathetic than their counterparts at large schools. The kids in the Crossroads program at Simon Gratz High School offer a good example: Since its inception, attendance is up 15 percent and the drop-out rate has decreased.

In creating a sense of community and sanctuary that draws kids, the small school environment goes a long way toward preparing and enabling youngsters to concentrate on learning. When one is safe, cared for, and respected, it is plausible to become engaged in the activities of learning. However, unless the crushing anonymity of the high schools—even the middle-sized ones, much less the big ones—is addressed, the docility, distraction and departure of many of these kids will continue at an alarming rate.

Academic Coherence

We believe that a school's purpose is to help kids learn to use their minds well. Schools shouldn't attempt to be "comprehensive" if such a claim is made at the expense of that central purpose; instead, they ought to be simple in structure so that the learning which goes on there can be complex. "Simple in structure" implies a serious focusing of the academic program, which lends it coherence—even from the perspective of the students. Because today's students are already exposed to so many influences and stimuli outside of schools, they no longer need the school to provide the variety in their lives. On the contrary, what schools most helpfully can provide for students is that sense of concentration or coherence which many kids lack in their lives outside of schools.[11]

One of the great fortunes of small schools, though they can't offer the diversity of courses which might be found in a large school, is their ability to develop strength in a few areas of inquiry. That is, small schools can ensure that the limited number of courses they offer will all be rich, meaningful, and *substantive*. One of the Coalition maxims, "less is more," encourages this choosiness about content that allows students and teachers to simplify the breadth of coverage, but to go deep in those areas perceived to be most important.

Ironically, by offering students less, in the way of choices and levels, students can actually gain more from their learning, in terms of deeper understanding, connections across knowledge areas, and skills of critical thinking. A recent study on New York City schools by the Rand Corporation found that most of the students in their study sample would have learned more from a "simpler, centripetal curricula."[12] A small school is suited to focus on doing a few things well, whereas the temptation of the large school is to try to offer something for everyone—the breadth of such practice making it much harder to maintain high-quality academic standards across the board.

The fewer course offerings in a small school also fosters the spirit of community. The focused program allows everyone to be engaged in the same few areas of deep inquiry, engendering a feeling of shared enterprise and collegiality nearly unthinkable in big schools. The comprehensive high school, on the other hand, is characterized by an abundance of choices (a broad array of subjects and levels at which they can be learned), which not only diffuses the academic purpose, but divides kids, actually perpetuating and even exacerbating the inequalities—in particular of class and race—inherent in the school population. For instance, consistent choices of voc ed courses or college preparatory math courses are not "equal" in their likely effect on a child's future. While all kids learn differently and are interested in different things, the rigidly differentiated tracks in big high schools—often the result of choices made in the early years of high school and of perceived ability level—may determine to what level children will achieve and aspire, quite apart from any natural capabilities the child may or may not have. That the tracking distinctions (which kids have what "ability") are made so often on the basis of scores from tests we decry is even more damning.

Thus the poetry of small scale is in its very limits, which circumscribe a shared course of learning that is simple, deep and coherent.

Environment: The Small School Community

The solution for the problems of anonymity and incoherence is, happily, the same, and it lies largely in the *organizational* benefits of small schools. The organization of a school affects deeply and even determines whether or not either of the first conditions—kids being known and the coherence of the academic experience—will be allowed to take hold.

In thinking about the organization of the school, we might gain insight into general principles of social organization from the realm of political philosophy. Jean Jacques Rousseau's treatise on the social contract favors the relative strength of a small state compared to a large one, because:

> not only does the [too large] government act less firmly and less speedily in compelling the observance of the laws, in preventing unfairness, correcting abuses. . . but the People have less affection for their rulers, whom they never see, for their country, which is no closer to them than the world at large, and for their fellow citizens, many of whom they do not even know. . . When a great multitude. . . are brought together by the concentration of a central government in one place, talents lie buried, virtues are ignored and vices tend to remain unpunished. The rulers, overburdened with work, have first hand knowledge of nothing."[13]

Small schools, like small states, offer a better opportunity for community-building: With fewer individuals, a genuine general will can be fostered which faithfully represents those involved. When the school is small enough to work as a "place of shared visions and common values," the school functions as a community. We can see in current political rhetoric—in the proposals for enterprise zones, for example—the preference for "community-based services" over centrally administered services, precisely because the strength of the bonds and responsibilities that come from relationships among people promise a better chance of successful delivery of those services.

The earlier-cited Rand study on New York City schools confirms the contributions of small size to quality schooling. The researchers discovered in their study two characteristics which predispose to success what they dub "focus schools." Focus schools are those which are distinguished by a "clear, uncomplicated mission," and which are strong, autonomous organizations "with the capacity to act."[14] As schools with unique identities and missions, focus schools also provide the possibility of real alternatives from which teachers, parents, and students can choose. It is hard to imagine a large school, hostage to all of the administrative procedures and regulations and hierarchical suspicion inherent in its functioning, capable of acting in such concert in any timely manner.

A small school which operates as a community is governed by a system of working relations—you can trust and respect folks you know—rather than by formal or written rules. This kind of "authority" improves relations among staff and student body alike. Teachers need to feel that they belong and are valued, they need to feel that they are heard rather than being at the tail end of a long chain of command. Because consensus is easier to achieve within a small group, small schools can promote a "pancaked" hierarchy that responds to these needs in ways no large school can. When staff meetings are small enough to take place in a single classroom, and when an afternoon in-service meeting provides time enough for every person to be heard, ownership and responsiveness increase exponentially. Certainly, those adult working relations at the school have a bearing on the culture of that school: healthier, more collegial relations among the staff engender the same with and among students.

The context likewise informs the intellectual habits of the school. To satisfy the need for academic coherence, themes and concepts can be connected across disciplines, and coordinated, focused lessons can be created through purposeful and effective interdisciplinary and integrated classes. However, this requires collaboration among faculty and, not unimportantly, a schedule which is simple enough to absorb new shapes. The collegiality necessary to make such a flexible structure work is more easily accomplished by small, intimate environments than large diffuse ones. And when an entire staff can be involved in any and all curriculum and instruction decisions and can introduce and gain consensus on new initiatives in a single afternoon meeting, curriculum instruction and scheduling options that could never be accommodated in a larger school begin to open up.

Only from such a small, cohesive environment can an authentic "common set of understandings" arise and give shape to standards that likewise embody shared values. The small environment means that these standards articulate more accurately the outcomes—what graduates should know and be able to do—desired by the school's constituency. Further, small schools, by virtue of their inherently more flexible structure, can afford to allow some room for dispute and response around those standards and the achievement of them. One empirical study which attends to the conditions of small schools finds that, in the most simplistic evaluation terms, it is harder to monitor student progress in larger schools.[15] We know that administration is more cumbersome in bigger than in smaller organizations; it is no surprise that it is also tougher to assess, in thoughtful and varied ways, the progress of many rather than fewer.

The stories of Essential school people across the country testify to the importance of how the insides of schools are fashioned, how those schools are kept. Schools which are small and tightly knit become microcosms: they are little communities—with all the senses of common interest, participation and identity and purpose the term implies—which support learning.

The Argument for the Large School

So why, when common sense and recent research so clearly favor the small school environment, do we remain wedded to the idea of the comprehensive high school? Our attachment is rooted in some very powerful nostalgia, more comprehensible perhaps if we revisit the time and place which spawned it.

In the "good old days" before the late 1950s, poor kids, minority kids, "marginal" kids a substantial portion of the adolescent population—didn't attend high school. Average school completion level among American soldiers during World War II was at about eighth grade. Contrast that to the Americans who fought in Viet Nam: the school completion level hovered somewhere near the twelfth grade, in spite of the fact that military recruitment relied far more heavily on individuals from low-income backgrounds. Thus the 1950s witnessed the revolutionary reality of *mass secondary education*. Not only were more kids from a broader demographic spectrum attending school, but as the beginning of the baby boom hit, schools were faced with a dramatic increase in the absolute number of adolescents as well. It could be said that the growth industry of the 1950s was, in fact, high school.

Beyond simple numbers, however, post-World War II America demanded a retooled sort of schooling, capable of addressing the challenges posed by the Cold War, the mandate for racial integration, and the broad realization of the American dream. The fear that America was losing ground—Sputnik still a stinging memory—was palpable. James Bryant Conant was the right man at the right time, with a solution, a vision of a system that never existed before, that was, appropriately, uniquely American.

Conant, an ex-president of Harvard University, a renowned scientist and a political appointee, held a well-developed sense of the purpose of education. He was convinced that high schools needed to prepare adolescents with the projected needs of the community in mind, and that the schools shouldn't be wasting many kids' time by feeding them academic subjects after a certain point. His views assume a division of labor in the society and suggest ability grouping in schools, a stance that he justified on the basis that such respected individual differences and would provide something for everyone. Because he also believed that all honest labor shared an equality of status, the "differences" were not valued differently as far as Conant was concerned.

With this philosophical indifference to whether a youngster ended up a brick layer or a neurosurgeon, the acceptance in schools of different abilities could be recognized and provided for without privileging or shortchanging anyone. Conant's Platonic vision of the comprehensive high school, then, provided something for everyone—with all educational paths routing students to different, but equal, ends. Counselors would be employed to guide kids into the various tracks, according to their perceived ability. Recognizable in many of today's schools are characteristics of Conant's vision, including the provision of a general education for all citizens (intended to offer a foundation for participation in our democratic society); good elective programs to equip kids for all sorts of work; satisfactory college preparatory courses; and special attention for the gifted.

But we have a new world order to contend with today—America is a very different place from what it was forty years ago. The population is increasingly diverse and the conditions of many kids going to school today has degenerated terribly from those in the past. In addition to that, we know a lot more, based on our experiences with large high schools. We know that the rhetoric—all paths lead to equal ends—is rarely authentic. We know that the tests used to set kids on lifelong paths are often shamefully narrow and one-dimensional; some are biased, others simply inaccurate. And finally, we expect a lot more today than we ever have before. Increasingly, political wisdom links global competitiveness and a healthy economy to improved education of *all* of our kids. While downsizing schools is not sufficient to achieve improved education for all of our youngsters, it is a steady and solid step in the right direction.

Moving beyond the vision of "high school" as it was conceived in the crucible of the Conant years is the hardest step. Devising practical solutions and innovative ways to create small school environments is relatively easy because it simply involves resourceful thinking about how to arrive at the particular point of small environments.[16] What challenges us is the charge to radically redirect our thinking—following the precepts of what we know about how kids learn best—toward the small, the particular . . . the beautiful.

ENDNOTES

1. With assistance from Theodore R. Sizer. We are indebted to many of our colleagues as well for their generous input, especially Judy Codding, Bob Cresswell, Heather Lewis, Deborah Meier, and Patricia Wasley. Sid Smith's contributions of experience and editing were invaluable.

2. Berger, J. (1992, August 7). Cutting the big high school down to size. New York Times, 3B.

3. Oxley, D. (1989, Spring). Smaller is better. American Educator, 28-31, 51-52.

4. Powerll, A., Farrar, E., & Cohen, D. (1985). The shopping mall high school. Boston: Houghton Mifflin.

5. Meier, D. (1992, Summer). Reinventing teaching. Teachers College Record, 93(4).

6. Pseudonym for a Coalition member school in which researcher Patricia A. Wasley is conducting a study school change.

7. Wasley, P. A. (1991, Fall). Paths through the woods: The beginning of a long tale about a changing school. Working paper prepared for School Change Study. Providence, RI: Coalition of Essential Schools.

8. NBC. (1992, September) The Brokaw Report.

9. NBC. (1992, September). The Brokaw Report.

10. Maeroff, G. I. (1992, February). To improve schools, reduce their size. The College Board News.

11. Powell, A., et al. (1985). The shopping mall high school.

12. Hill, P., Foster, G., & Gendler, T. (1990). High schools with character. Santa Monica, CA: RAND Corporation, x.

13. Barker, E. (Ed.). (1960). Social contract. London, Oxford University Press.

14. Hill, P., et al. (1990). High schools with character. Santa Monica, CA: RAND Corporation, vii.

15. Oxley, D. Effects of school size: A bibliography. New York: Publication Education Association.

16. For instance, even in the face of urgings to consolidate rural districts, the use of modern telecommunications technology can bring to small schools courses which might otherwise not

be offered, services can be shared or pooled, and large schools, like that of Judy Codding, can decentralize into "houses" or units.

On Local Control:
Is Bigger Better?

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Introduction

In achievement comparisons among industrialized countries, U.S. students usually rank near the bottom, even on American tests. Moreover, achievement scores remain low despite steadily increased spending on public schools. During the half century between 1940 and 1990, inflation-adjusted costs rose more than five times, from $878 to $5,292 per student. Current school costs place the U.S. first in the world among major industrialized countries (U.S. Department of Education 1991, 1992).

What happened during the last half century to make the U.S. first in costs and near last in learning? Why such low productivity by historical and international standards? Three massive changes in state policies may provide surprising answers:

1. The number of school districts declined 87 percent, from 117,108 to 15,367. The average number of students enrolled in each district rose more than ten times, from 217 to 2,637 students.
2. The total number of elementary and secondary public schools declined 69 percent, from approximately 200,000 to 62,037. Their average enrollment rose more than four times, from 127 to 653.
3. The percentage of school revenues from local sources declined while the state share increased sharply. While the federal share never exceeded 10 percent, the state share rose from 30 to 48 percent to exceed local revenues.

Recent reviews of research and findings reported here suggest that these trends were in exactly the wrong direction. Higher achieving states have smaller districts, smaller schools, and smaller state shares of school costs. Before turning to these findings, consider previous research on the effects of organizational size and remote governance.

Economies of Scale?

Some education finance specialists equate educational quality with size and costs (see, for example, Cohn & Geske, 1990, pp. 205-210). Influenced by older economic theory, they hold that schools and districts are like goods and service industries. They assume "economies of scale," that is, falling per-unit costs with greater numbers of units produced or served. If this were true, then large schools and districts could cut costs, raise quality, or both.

Even if the analogy of firms and schools is valid, research on manufacturing and service industries fails to show consistent scale economies. Gold (1981), for example, concluded: "It is important to recognize that the widespread faith in the 'economies of scale' has not gained much support from the relevant theoretical and empirical literature" (p. 5). Gold cited five extensive summaries of research, one going back to 1943, suggesting "equally unenthusiastic" conclusions.

The studies yield conflicting findings: "Results of scale-economy studies have been mixed with some researchers reporting a negative relation between size and economies of scale, others finding a positive relationship, and a third group identifying medium size as most economical" (Gooding and Wagner, 1985, p. 462). Similarly, studies of schools have shown mixed results (Cohn & Geske, 1990; Guthrie, 1979; Gooding & Wagner, 1985; Sher, 1977).

For these reasons, economists now write about "diseconomies of scale" in referring to rising per-unit costs with organizational size. Indeed, American primary and secondary education has exhibited huge diseconomies of scale during the past half century: The figures above show that per-student costs rose 6 times, district size rose 12 times, and school size rose 5 times.

Quality of Outcomes

More important than costs is quality or ultimate value of education - what students learn. Is bigger better? Gooding and Wagner (1985) summarized 95 relations of size and value outcomes in 31 field studies of schools, school districts, colleges, hospitals, work groups, and manufacturing and service firms. The value measures included academic and nonacademic achievement, extracurricular activities, graduation rates, quality of service ratings, output per employee, and profitability.

The value of output per unit was inversely related to size—that is, larger organizations and subunits were less efficient at producing high-quality outcomes. For organizations such as hospitals and business firms, the correlation was weak and negative (-.06), but statistically significant. In subunits of organizations, such as schools within districts, academic units within universities, psychiatric units within hospitals, and manufacturing units within firms, the correlation was more strongly negative and significant (-.28).

Why do larger organizations and larger subunits tend to produce less per-unit value? Buchanan (1968), Gooding and Wagner (1985), and Olson (1971) identified organizational phenomena that reduce efficiency or productivity. These appear more prevalent in larger organizations, particularly larger public agencies with vague goals. In the language of organization theory, "coordination costs" among functional departments and administrative levels divert money, time, and attention away from ultimate purposes. "Agency problems" prevent governing boards and chief executives from getting full and accurate information from all parts of the organization. "Bureaucracies" favor standard operating procedures over more productive and client-satisfying innovations.

In addition, staff members, even in public agencies, may lack altruistic perfection. "Agency problems" enable staff to work for their own (possibly self-interested) purposes. They should instead be trying to suit board directives, consumer tastes, and client preferences. "Free riders" reap benefits of staff membership while evading costs of full effort. "Rent seekers" try to impose costs for unneeded or unperformed services, thereby reducing value in relation to consumer or public costs.

District Size Bureaucracy

Inefficiency attributable to growing bureaucracy also occurs to state agencies and school districts. Rowan's (1982) case studies in California showed that between 1930 and 1970 districts grew in size. They responded to state mandates and external pressures to add specialized administrators and separate programs for instructional, health, psychological, and other services. These services were added as legislators, special interests, regulatory agencies, and professional associations built consensus among themselves. They brought pressure to bear on state departments of education and school districts to provide specialized and peripheral programs such as driver education.

Rowan attributed the motivation of external groups in seizing local control to their perceptions of a lack of consensus among local citizens and a lack of expertise among local educators. In addition, financial inducements and regulatory burdens by federal and state authorities undoubtedly pressured districts to grow bureaucratically.

Similarly, Strang (1987) documented the rising power of state bureaucracy and declining autonomy of local districts even as they grew larger. In support of this view, he cited the eightfold decline in the average number of districts per state, from 2,437 to 318 between 1949 and 1980, and a rise in the average number of students per district, from 216 to 2,646. As state funds, legislation, and regulations increased, education took on classic bureaucratic features: centralization of control, formal hierarchies, specialization of function, narrow credentialism, and precedence of impersonal means over nominal ends.

For example, specialists in subject matters and types of children such as "learning disabled" were hired at state, district, and school levels. The later years of the traditional eight-year elementary school were replaced by departmentalized middle and junior high schools. In these schools, the subjects are compartmentalized. Students have as many as five specialized teachers per day, none of which are likely to know them as well as traditional elementary teachers who have the same class most of the day. Like hospitals that treat diseases rather than patients, such schools are likely to teach subjects rather than students, and to assign responsibilities for mental health and guidance, speech and hearing to specialists.

Strang pointed to the coordination of local and state functions in large districts driven by specialized federal initiatives. For example, special funding for handicapped and vocational programs promoted their special interests, but excluded educational generalists, other specialists, and lay citizens. Smaller districts often skip such specialization, thereby maintaining a cohesive general curriculum. Further, they can adapt to local preferences and conditions, and strengthen ties among school, home, and community that induce learning. Such districts do fewer things better and avoid spurious categorization of students, ineffective programs that ill-serve them, and expensive administrative complexity.

District Size and Quality

Since *A Nation at Risk* in 1983, the primary education question concerned learning rather than spending as an index of educational quality (National Commission for Excellence in Education, 1983). Despite the huge growth of school districts for the past half century, no studies were made of their learning effects until 1975. All recent studies, however, suggest that smaller ones do better.

Such studies typically control for educational costs, student socioeconomic status, and other factors. Monk's (1987) study exemplifies recent findings: "Empirical evidence from New York State is presented which shows that lower levels of efficiency exist in large as compared to small districts" (p. 148). In the same year, Walberg and Fowler's (1987) analysis of New Jersey districts also showed an inverse size-achievement relation. Earlier, Bidwell and Kasarada (91975), and Turner, Camilli, Kroc, and Hoover (1986) found larger Colorado districts to achieve less efficiently.

School Size and Quality

Many more studies have examined the influence of school size on outcomes. In a comprehensive review, Fowler (1992) notes that Conant (1967) and Barker and Gump (1964), though in disagreement, wrote the seminal works on the subject. Former president of Harvard and Ambassador to Germany, Conant initially won the day. Funded by the Carnegie Foundation and the National Association of Secondary School Principals, he examined questionnaires from 2,024 high schools of 750 to 1,999 enrollments. Despite the lack of smaller schools for comparison, Conant concluded that large, "comprehensive" high schools offer a wide program of foreign languages and Advanced Placement courses (for college credit) at lower cost.

Barker and Gump (1964), on the other hand, closely observed five Kansas schools ranging in size from 83 to 2,287 students. They concluded that students in small schools excel at all social and psychological attributes observed. Their findings could be explained by applying the theories described above to such phenomena as close parent and community ties, the absence of anonymity and indifference, and lack of internal hierarchy and departmentalization.

Barker and Gump's explanation, however, employed the complementary anthropological idea of "manning": When few students are available for school activities, students who would be marginal in a large school are noticed and encouraged to participate to fill slots on the cheerleaders and basketball teams, for example. With such participation, as more recent research confirms, loneliness, deviance, and drug use declines, while engagement, achievement, and concern for others rises.

Although school policy followed Conant, research bears out Barker and Gump. The preponderance of studies show that, other things being equal, students generally learn more in smaller schools and reap related benefits. Because of the voluminous literature, the conclusions of Fowler's (1992) extensive review are summarized.

Small elementary schools show reasonably consistent and positive learning effects. Perhaps the main reason is that the main agents of learning, teachers and students, undistracted by departmentalization and hierarchy, can concentrate on the lessons at hand. Parents, too, are more likely to know the principal, be informed about the children's progress, participate more fully in school activities, and influence decision-making. These can be accomplished partly because the school is smaller but also because it is likely to be physically and psychologically close to their homes. In addition, modern educational psychology shows the value of the one-room school practices of a century ago—mastery materials, mixed-age grouping, peer tutoring, and reciprocal teaching in which students teach each other (Gutierrez & Slavin, 1992; Wang, Haertel, & Walberg, 1990).

Size studies of high school achievement are somewhat less consistent, perhaps because students' funds of learning are greater and new additions add relatively smaller amounts. The studies, however, show consistent benefits of small size on the critical problems of adolescent students: Smaller high schools promote student satisfaction and sense of belonging, participation and accomplishment in school activities, attendance and retention, and avoidance of cigarettes, smokeless tobacco, alcohol, and marijuana. Several studies suggest that smaller schools may benefit at-risk students of lower socioeconomic status more than others.

Marion and McIntire's (1992) important study controlled not only for the usual variables of socioeconomic status and per-student costs but also region of the country and ruralness. In an analysis of 710 schools, their analysis showed that, even discounting the positive effects of rural location, smaller high schools yielded greater achievement and years of attained education after high school. Thus, smaller schools showed long-range effects independent of rural advantages.

A related topic deserves mention—urban "alternative schools," now often called "schools of choice," which tend to be much smaller than regular urban high schools. They come in a bewildering variety, but have proven effective for both regular students, often with special interests, and students with such problems as delinquency, dropping out, drug abuse, and pregnancy (Nathan, 1989).

The small size of alternative schools may allow or encourage a variety of unconventional virtues. Often, their principals teach; teachers assume responsibility for all subjects rather than a specialty; the school is surreptitiously detached from central office bureaucracy; and they are very locally governed by "town meetings" of the staff and parents—sometimes students. Staff frequently bring in outside experts to teach; and students study in the field and in cooperating organizations (Nathan, 1989). Alternative schools exhibit several features of effective organizations: democratic governance, a distinctive identity, ideals and rules that all are expected to abide by, a caring sense of community, an absence of hierarchy and departmentalization, and openness to the environment.

State Share of Costs

Since per-student costs multiplied during the years that states paid ever larger percentages of school costs, it might be concluded that the rising share and rising bureaucracy might have caused inefficiency. During the past decade of education reform, when states picked up a greater percentage of education costs, it is obvious that legislatures have also passed a variety of familiar mandates such as course requirements, statewide testing, no passplay rules, driver education, and a host of other initiatives and regulations. There is no empirical research, however, on the learning effect. Still, several views seem reasonable as working hypotheses.

Organization theory and evidence (Buchanan, 1968; Olson, 1971) suggests that placing responsibility for decision making in a large, remote, hierarchical agency—the state legislature and executive branch—removes local control from school boards and staff. Obviously, the total amount and specific allocation of funds are among the most important decisions an organization can make. Removing this authority means that local citizens and educators have less at stake, less incentive to monitor the raising and spending of "other people's money" that is collected anonymously through state income tax and contains various regulatory strings and constraints on allocation.

Conversely, as Olson (1971) has shown, special interests have greater inducements to exercise influence at the state and national level; they have concentrated narrow interests in legislation and regulations that can benefit them greatly. Typical citizens, school board members, and educators, however, cannot follow the many specialized bills passed by legislatures; nor are they likely to be greatly affected by any single act. The result, however, is that local autonomy and accountability tend to be lost.

There are other risks of remote funding: Boards and superintendents may have less at stake when they need not justify the spending of remotely raised funds for new facilities, equipment, and programs to local tax payers. Bureaucracy requires financial and operational reporting, forms for special state grants, waivers to depart from standard procedures, and the like. Time consuming, these activities draw attention from teaching and learning.

Analysis of State Achievement

If these theories and previous research are valid, then states with large districts, large schools, and large shares of within-state funding should do poorly. The first administration of the National Assessment of Educational Progress to random state samples allows estimates of the effects of the three state trends on achievement. Thirty-seven states and the District of Columbia voluntarily participated in the eighth-grade mathematics proficiency test that contained items on numbers, operations, measurement, geometry, data analysis, probability, algebra, and mathematical functions.

Taken from federal reports (U.S. Department of Education, 1991, 1992), the other measures are average school size in state, average size of districts, and percentage of educational revenues raised within-state paid by the state as opposed to local districts. Their relation to achievement is shown in the three figures that show the states by their standard postal codes.

The first figure, "Achievement and District Size," shows North Dakota, Montana, and Nebraska on the upper left. These states have the smallest average district sizes, around 250, and the highest average achievement, around 280, as revealed by their height on the graph. On the other hand, states with large districts, over 200,000, Louisiana, Florida, the District of Columbia, and Hawaii, have low achievement.

The second figure shows that states with the smallest average school sizes, around 150 students, are North Dakota, Montana, Nebraska, and Wyoming. Their height shows that they also have the highest average achievement. States with the largest schools, Florida and Hawaii, have low achievement.

The third figure shows that Nebraska and Oregon contribute the smallest percentages to education costs, around 25 percent, but have high scores. States that contribute 75 percent or more—California, Alabama, Kentucky, New Mexico, and Hawaii—have low scores on average.

Thus, what might be expected from previous theory and research is confirmed: States with big districts and big schools, and which pay more of the costs of education tend to have the lowest achievement. The respective statistical correlations (-.46, -.54, and -.53) are substantial and statistically significant.

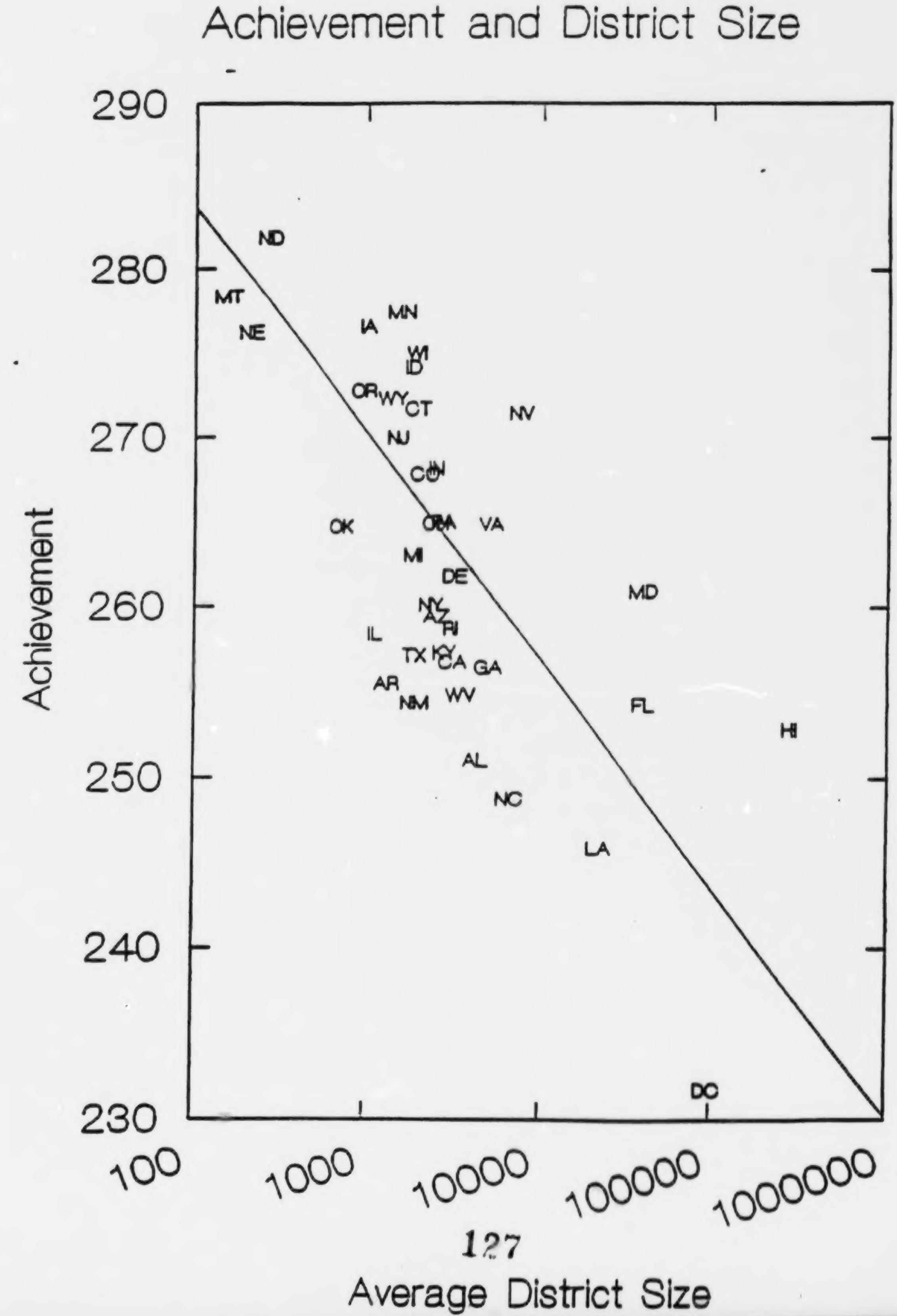
Conclusion

During the past half century, states have created ever larger schools and districts, and they have increasingly employed remote state funding. Previous theory, research, and analyses of achievement data in 38 states reported here suggest that these trends have been counter-productive for education's chief purpose—learning.

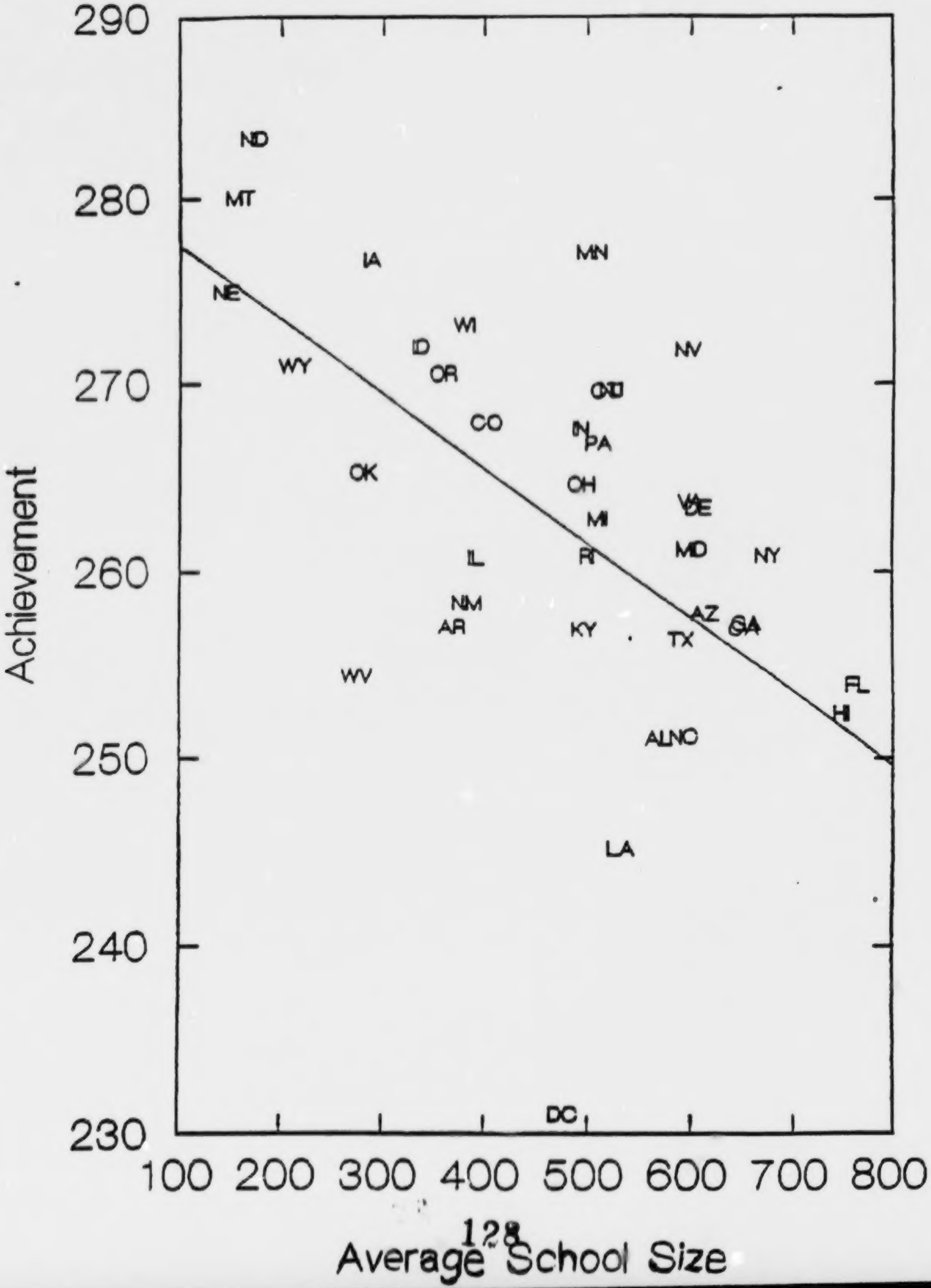
The worrisome trends identified here may be part of a larger problem—"intergovernmentalism," making more levels and parts of government responsible for domestic affairs, even though common sense says that when all are nominally responsible, none is truly responsible. In writing on this subject, Kincaid concluded: "Virtually all of the factors most associated with academically effective education are school and neighborhood-based. Yet, we have shifted more control and financing of education to state and national institutions" (p. 28).

It might not be possible to eliminate these harms without returning to earlier ways and wisdom—as formidable a task as that may be. Modern means of devolving funding and control have yet to prove their value. These include state accountability schemes, school-site management, the New York City plan for community boards, and the Chicago plan for local school councils. Nor have "home rooms" and "schools within schools" shown that they can give students the psychological identification with their schools that they may require for a satisfactory learning experience. It might be wiser to turn back or stop the clock.

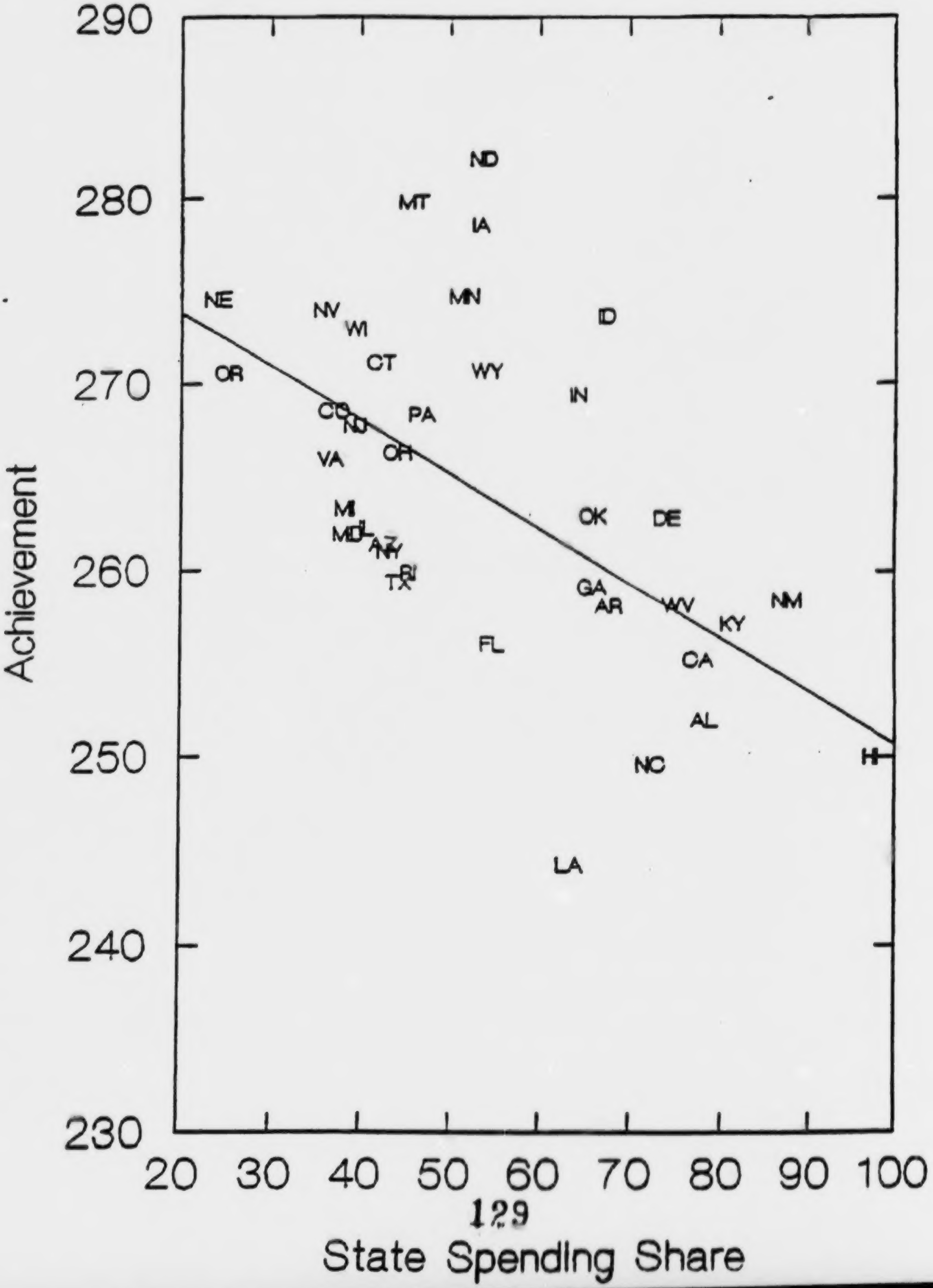
Append to: Walberg, Herbert J., "On Local Control: Is Bigger Better?"



Achievement and School Size



Achievement and State Share



References

Barker, R.G., & Gump, P.V. (1964). Big school, small school: High school size and student behavior. Stanford, CA: Stanford University Press.

Bidwell, C.E., and Kasarda, J.D. (1975). School district organization and student achievement. American Sociological Review, 40, 55-70.

Buchanan, J.M. (1968). The demand and supply of public goods. Chicago: Rand-McNally.

Conant, J.B. (1967). The comprehensive high school. New York, NY: McGraw-Hill Book Company.

Cohn, E. (1990). The economics of education. Oxford, England: Pergamon Press.

Fowler, W.F. (1992). What do we know about school size? What should we know? A paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Gold, B. (1981). Changing perspectives on size, scale, and returns. Journal of Economic Literature, 19, 5-33.

Gooding, R.Z., & Wagner, J.A. (1985). A meta-analytic review of the relationships between size and performance: The productivity and efficiency of organizations and their subunits. Administrative Science Quarterly, 30, 462-481.

Guthrie, J.W. (1979). Organization scale and school success. Educational Evaluation and Policy Analysis, 1, 17-27.

Gutierrez, R., & Slavin, R. (July 1992). Nongraded school programs regain popularity. CDS Report. Baltimore, MD: Center for Research for Disadvantaged Students.

Kincaid, J. (Winter, 1992). Is education too intergovernmental? Intergovernmental Perspective, 28-34.

Monk, D.H. (1987). Secondary school size and curriculum comprehensiveness. Economics of Education Review, 6, 137-150.

Nathan, J. (1989). Public schools by choice. St. Paul, MN: The Institute for Learning and Teaching.

National Commission for Excellence in Education (1983). A nation at risk. U.S. Government Printing Office, Washington, DC.

Olson, M. (1971). The logic of collective action. Cambridge, MA: Harvard University Press.

Rowan, B. (1982). Organizational structure and the institutional environment: The case of public schools. Administrative Science Quarterly, 27(3), 259-79.

Sher, J.P. (Ed.) (1977). Education in rural America: A reassessment of conventional wisdom. Boulder, CO: Westview Press.

Strang, D. (1987). The administrative transformation of American education: School district consolidation, 1938-1980. Administrative Science Quarterly, 43, 352-66.

Turner, R., Camilli, G., Kroc, R., and Hoover, J. (1986). Policy strategies, teacher salary incentive, and student achievement: An explanatory model. Educational Researcher, 15, 5-11.

U.S. Department of Education (1991). Digest of education statistics, 1991. Washington, DC: Author.

U.S. Department of Education (1992). The condition of education, 1992. Washington, DC: Author

Walberg, H.J., & Fowler, W.F. (1987). Expenditure and size efficiencies of public school districts. Educational Researcher, 16, 5-15.

Wang, M.C., Haertel, G.D., & Walberg, H.J. (1991). What influences learning?—A content analysis of review literature. Journal of Educational Research, 84, 30-44.

Biographies

Tom Gregory

Tom Gregory has taught at Indiana University in Bloomington for the past 22 years. He conducts research on, consults with, and writes about public alternative education. He is coauthor (with Jerry Smith) of *High Schools as Communities: The Small School Reconsidered* (*Phi Delta Kappa*) which describes the power of alternative public high schools and argues for the transformation of all schools into very small, close-knit communities. Gregory was director of Indiana's Alternative Schools Teacher Education Program from 1978 until the program closed its doors in 1982. He has received Indiana University's Distinguished Teaching Award and has been a Lilly Teaching Fellow. He spent his fellowship year, the 1987-88 school year, on the staff of Mountain Open High School, a public alternative school which was then located in Evergreen, Colorado. He has recently finished a book, *A Real Logical Way: Life on the Frontiers of Schooling*, for Teachers College Press which chronicles that experience.

David Monk

David H. Monk is a professor of educational administration at Cornell University. He earned his Ph.D. at the University of Chicago and has taught in a visiting capacity at several universities in the United States and abroad. He is interested in economic aspects of educational administration and has studied resource allocation practices at multiple levels of educational systems. He recently assisted the state of Rhode Island with the reform of its K-12 educational system and consults widely on matters related to school and school district size. He is a member of the editorial boards for the *Economics of Education Review*, *Educational Evaluation and Policy Analysis*, and *Research in Rural Education*. He is also a Senior Research Fellow with the Consortium for Policy Research in Education's Finance and Productivity Center. He is the author of *Educational Finance: An Economic Approach*, and was recently elected president of the American Education Finance Association.

Paul Nachtigal

Paul Nachtigal is director of the Rural Institute, Mid-continent Regional Educational Laboratory. The Institute works with rural schools and communities, higher education, and state agencies on issues of school improvement and community development. The Laboratory serves the states of Colorado, Kansas, Missouri, Nebraska, North and South Dakota, and Wyoming. Prior to joining the Lab in 1980, Nachtigal was with the Education Commission of the States where he directed a national study of efforts to improve rural education: *Rural Education: In Search of a Better Way*. Other professional responsibilities have included nine years with the Ford Foundation monitoring and evaluating school improvement programs, seven years as a rural school superintendent, and four years with the Colorado State Department of Education. Recent consulting assignments include work for the Lilly Endowment, the Public Education Fund, the National Governors' Association, and the National Conference of State Legislatures.

Al Ramirez

Al Ramirez joined the Illinois State Board of Education as the executive deputy superintendent in February of 1990. He is responsible for policy development, strategic planning, educational research and evaluation, board operations, and special projects. Prior to this, he served as the executive director of school management for Colorado Springs School District. Starting his professional career as a Teacher Corps intern in Chicago, Dr. Ramirez' years of service to education include a variety of high-level education posts. He has held several administrative positions in Nevada's Department of Education, including deputy superintendent of public instruction. In addition, he has also served school children as district superintendent, principal, counselor,and teacher. Dr. Ramirez earned advanced degrees in special education, foundations and counseling, education administration,and higher education. He has published several articles on a broad range of educational topics, made presentations at a variety of state and national educational meetings and conferences, and has served on national study committees and on the board of directors for a number of educational organizations.

Bethany Rogers

Bethany Rogers was awarded her B.A. in English from Dartmouth College (1987) and her Ed.M from the Harvard Graduate School of Education (1991). In her work with the Coalition of Essential Schools she has collaborated with Ted Sizer and senior researchers on various writing projects, designed a study to explore the role of the media in communicating about school change,and participated in the design and teaching of Brown undergraduate courses in education. She is currently superintending research on arts education in secondary schools: how the art forms might be more powerfully taught in combination—as the Arts—and how the Arts so construed might contribute to the reform and restructuring of high schools.

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Herbert J. Walberg is research professor of education at the University of Illinois at Chicago. Formerly assistance professor at Harvard University, he has served as an advisor on educational research and improvement to governmental and private agencies in the U.S. and a dozen other countries. Additionally, he has frequently testified before state and federal courts and the U.S. Congressional committees. Walberg has written or edited more than 45 books and contributed more than 350 articles to educational, psychological, and practitioner journals on such topics as educational achievement, psychological development, international comparisons, instruction, and parent education. He chaired the scientific committees of the U.S. National Assessment Government Board and the Educational Indicators Project of the Organization for Economic and Cooperative Development in Paris.

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